

SMITHSONIAN INSTITUTION  
UNITED STATES NATIONAL MUSEUM

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# CONTRIBUTIONS

FROM THE

# UNITED STATES NATIONAL HERBARIUM

VOLUME 18, PART 7

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## GRASSES OF THE WEST INDIES

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By A. S. HITCHCOCK and AGNES CHASE



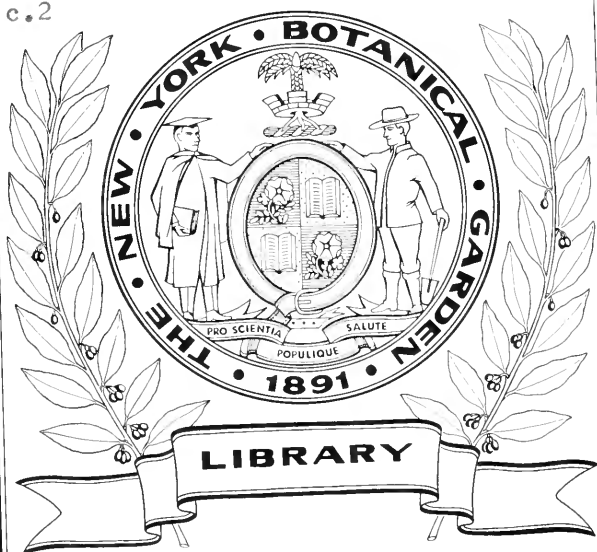
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ISSUED AUGUST 18, 1917.

II

## PREFACE.

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The accompanying paper by A. S. Hitchcock, Systematic Agrostologist of the United States Department of Agriculture, and Agnes Chase, Assistant Agrostologist, brings together in a single convenient publication our knowledge of the grass flora of the West Indian Islands. Though some of the earliest collections of plants sent from America to Europe came from the West Indies, and though the flora of this region has since been studied by many botanists, no account of the grasses of the whole region has hitherto been published. The present paper is based upon large collections from practically all the islands of the group and upon field studies by both authors. It includes 110 genera and 455 species, of which one genus and 17 species are new. The new genus, *Saugetia*, is named in honor of Brother León, Joseph Sylvestre Sauget, of the Colegio de La Salle, Habana, one of the most active of Cuban botanists.

The brief descriptions, giving the salient characteristics of the species and genera, are intended to supplement the keys and confirm identifications. To facilitate the use of the work as a manual the detailed citation of specimens under each species is omitted. Appended to the paper, however, is a list of all the numbered specimens of West Indian grasses in the United States National Herbarium.

FREDERICK V. COVILLE,  
*Curator of the United States National Herbarium.*



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# GRASSES OF THE WEST INDIES.

By A. S. HITCHCOCK and AGNES CHASE.

## INTRODUCTION.

The term West Indies as here used includes Bermuda, the Bahamas, Trinidad, and Tobago, but excludes the Dutch Islands off the coast of Venezuela. Trinidad and Tobago belong floristically to South America but are here included with the West Indies because they were so included by Grisebach in his *Flora of the British West Indian Islands*.

The flora of the West Indies has been studied from an early date. It is fortunate for the student of this flora that many of the tropical American species described in early works were based upon specimens collected in these islands. The literature of the West Indian flora is reviewed by Urban,<sup>1</sup> who gives also biographical sketches of botanical collectors who have traveled in the West Indies. The most important works are the following:

**Sloane, Hans.** A voyage to the islands Madera, Barbados, Nieves, S. Christopher, and Jamaica \* \* \*. Vol. 1, 1707. Vol. 2, 1725. The chief importance of this work is due to the fact that the plates are often cited by Linnæus and others in connection with the descriptions of plants and help to determine the types of the species described. The plants described by Sloane are in the Sloane Herbarium at the British Museum of Natural History.<sup>2</sup>

**Browne, Patrick.** The civil and natural history of Jamaica. 1756. Binomials are not used in this work. Browne sent a small collection of Jamaican plants to Linnæus. These are in the Linnæan Herbarium and may be recognized by the letters "Br." upon the sheets. These plants were described by Linnæus in the tenth edition of the *Systema Naturæ* (1759) and by Elmgren, a pupil of Linnæus, in a pamphlet entitled *Plantarum Jamaicensium Pugillus* (1759). The latter was included by Linnæus in the *Amoenitates Academicæ*, volume 5 (1760).

**Swartz, Olof.** Nova genera et species plantarum seu prodromus descriptionum vegetabilium. 1788. Swartz's plants are preserved in the Natural

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<sup>1</sup>Symb. Antill. 1. 1898.

<sup>2</sup>See Hitchcock, The grasses of Sloane's history of Jamaica. Contr. U. S. Nat. Herb. 12: 131. 1908.

History Museum at Stockholm.<sup>1</sup> They were more completely described in a later work entitled *Florae Indiae Occidentalis* (vol. 1, 1797; vol. 2, 1800; vol. 3, 1806). The grasses were mostly from Jamaica.

Hamilton, W. *Prodromus plantarum Indiae Occidentalis*. 1825. Several grasses are described, mostly from specimens in the herbarium of Professor A. N. Desvaux.

Sagra, R. de la. *Historia física política y natural de la isla de Cuba*. Volumes 9 to 12 are devoted to botany, the grasses being described by Richard in volume 11 (1850).

Grisebach, A. H. R. *Flora of the British West Indian Islands*. 1864. The type specimens are mostly in the herbarium at Göttingen, though many are in the Kew Herbarium. Many Cuban grasses are described in his *Catalogus plantarum cubensium* (1866).<sup>2</sup> In his "*Vegetation der Karaiben*"<sup>3</sup> there is an annotated list of the grasses of the Lesser Antilles.

Husnot, T. and Contance A. *Énumération des Glumacées récoltées aux Antilles françaises*. 1871. An annotated list.

Wright, C. and Sauvalle, F. A. *Flora Cubana*. 1873.<sup>2</sup>

Urban, I. *Symbolae antillanae*. 1898 et seq. In this work Pilger has described several grasses. An account of the grasses of Porto Rico is found in the *Flora Portoricensis*.<sup>4</sup> The Krug and Urban Herbarium was lent in 1912-13 to the U. S. National Herbarium for study. In this herbarium are many Bertero specimens, some the types or duplicates of types of species described by Sprengel, together with collections of Rugel, Linden, Wulfschlaegel, Sieber, and others.

Nash, G. V. Preliminary enumeration of the grasses of Porto Rico. *Bull. Torrey Club* 30: 369-389. 1903.

Hitchcock, A. S. Catalogue of the grasses of Cuba. *Contr. U. S. Nat. Herb.* 12: 183-258. 1909. Here are given details concerning the collections of Wright in Cuba and regarding the works of Grisebach and of Wright and Sauvalle, based mainly upon Wright's collections.

The present paper is based primarily upon the study of collections in the United States National Herbarium. At the end of this article all these specimens are listed with their identifications. For this reason the citation of specimens under each species is limited to the relatively rare species. Several other important herbaria have been consulted and specimens contained therein have been considered in defining the range of the different species.

Among the more important collections examined may be mentioned Wright's Cuba plants, of which the first set is in the Gray Herbarium, the United States National Herbarium having a nearly complete set of duplicates; those of Brother León, of the Colegio de la Salle, Habana, the richest single collection of Cuba grasses that has been made, a practically complete set of which Brother León has contributed to the National Herbarium; the collections of Harris

<sup>1</sup> See The West Indian grasses described by Swartz. *Contr. U. S. Nat. Herb.* 12: 135. 1908.

<sup>2</sup> See in this list, Hitchcock, A. S., Catalogue of the grasses of Cuba.

<sup>3</sup> *Abh. Ges. Wiss. Göttingen* 7: 260-266. 1857.

<sup>4</sup> *Symb. Antill.* 4: 76-100. 1903.

from Jamaica, most fully represented in the New York Botanical Garden Herbarium; those of Sintenis from Porto Rico, Eggers from St. Thomas, and Ricksecker from St. Croix; those of Duss from Martinique and Guadeloupe, the original set of which is at the New York Botanical Garden; those of Broadway from Tobago and Trinidad; and also the recent collections made by Dr. N. L. Britton and other members of the staff of the New York Botanical Garden, who have visited nearly all parts of the West Indies. The herbarium of the Botanical Garden, Port of Spain, Trinidad, contains a large collection of Trinidad plants made by successive superintendents of the garden.<sup>1</sup> This collection was examined by Mr. Hitchcock during his visit to Trinidad.

The senior author first visited the West Indies in 1890. An account of this trip was given in a paper entitled "List of Plants Collected in the Bahamas, Jamaica, and Grand Cayman."<sup>2</sup> In 1906 he visited Cuba, collecting in the Provinces of Habana and Pinar del Río. In 1912 he visited Jamaica, Trinidad, and Tobago. During this second visit to Jamaica Mr. Hitchcock was greatly aided by Mr. William Harris, Superintendent of Public Gardens, Hope Gardens. He was similarly aided in Trinidad by Mr. W. G. Freeman, Assistant Director of Agriculture, Port of Spain. Mr. W. E. Broadway, Superintendent of the Experiment Station at Scarborough, extended many courtesies to him while in Tobago. The junior author visited Porto Rico in 1913, where her work was greatly forwarded by Dr. F. L. Stevens, then Dean of the College of Agriculture, Mayaguez.

The citation of synonymy is not complete; names based upon collections from elsewhere than the West Indies are usually not given unless they occur in some of the works on the West Indian flora. An attempt has been made to account for names based upon West Indian material, but only by an exhaustive search through literature can the synonymy be completed.

The descriptions of the genera and species are usually merely diagnostic and are intended to supplement the keys.

Common names have been added in those cases where the grass is definitely known by an English name over a considerable area. To several Cuban species are appended vernacular names which were obtained in part from the Flora de Cuba<sup>3</sup> and in part were communicated by Brother León<sup>4</sup> and by Professor Roig.

<sup>1</sup> See Herbarium List. Botanical Department, Trinidad. Compiled and edited by J. H. Hart, Superintendent. 1908.

<sup>2</sup> Ann. Rep. Mo. Bot. Gard. 4: 47-179. 1893.

<sup>3</sup> De la Maza, M. G., and Roig, J. T. Flora de Cuba. Est. Exp. Agron. Bol. 22. 1914.

<sup>4</sup> Brother León's communication includes information on common names furnished by Sr. D. Rafael Garteiz, San Rafael Sugar Estate, near Victoria de las Tunas, the names based upon specimens.

## DESCRIPTIVE LIST, WITH KEYS.

## KEY TO THE TRIBES.

## Series 1. PANICATAE.

Spikelets with 1 perfect terminal floret (disregarding the few monœcious genera and the staminate and neuter spikelets) and a sterile or staminate floret below, usually represented by a sterile lemma only, one glume sometimes, rarely both glumes, wanting; articulation below the spikelets, either in the pedicel, in the rachis, or at the base of a cluster of spikelets, the spikelets falling entire, either singly, in groups, or together with joints of the rachis; spikelets, or at least the fruits, more or less dorsally compressed (laterally in *Lithachne*).

Glumes indurate; fertile lemma and palea hyaline or membranaceous, the sterile lemma like the fertile one in texture.

Inflorescence monœcious, the pistillate spikelets below, the staminate above on the same rachis.....1. **TRIPSACEAE** (p. 265).

Inflorescence not monœcious, the fertile spikelets perfect, each usually paired with a sterile spikelet.

Spikelets in pairs, one sessile, the other pedicellate (the pedicellate sometimes obsolete); lemmas hyaline.

2. **ANDROPOGONEAE** (p. 265).

Spikelets all alike, solitary or in groups of 2 or 3; lemmas membranaceous.....3. **NAZIEAE** (p. 266).

Glumes membranaceous; fertile lemma and palea indurate or at least as firm as the glumes; sterile lemma like the glumes in texture.

Fertile lemma and palea scarcely firmer than the glumes.

4. **MELINIDEAE** (p. 266).

Fertile lemma and palea indurate or subindurate, usually much firmer than the glumes.....5. **PANICEAE** (p. 267).

## Series 2. POATAE.

Spikelets 1 to many-flowered, the reduced florets, if any, above the perfect florets (except in *Phalarideae*; sterile lemmas below as well as above in *Uniola*); articulation usually above the glumes.

Plants woody, usually arborescent, clambering, or climbing (scarcely woody in *Planotia*.....13. **BAMBOSEAE** (p. 272).

Plants herbaceous.

Spikelets with 2 sterile or rudimentary lemmas unlike and below the fertile lemma .....7. **PHALARIDEAE** (p. 269).

Spikelets without sterile lemmas below the perfect floret (or these rarely present but like the fertile ones).

Spikelets articulate below the glumes, 1-flowered, either much compressed or if not then unisexual, never in dense spikes; glumes often reduced, sometimes wanting.....6. **ORYZEAE** (p. 269).

Spikelets articulate above the glumes or, if below, spikelets 2 or more flowered (*Notholcus* and *Sphenopholis*) or in dense racemose spikes (*Spartina*).

Spikelets sessile on a continuous rachis, forming spikes (short-pedicellate in *Leptochloa* and *Gouinia*).

Spikelets on opposite sides of the rachis; spike terminal, single.....12. **HORDEAE** (p. 272).

Spikelets on one side of the rachis; spikes usually more than 1, digitate or racemose (see also *Streptogyne* with tendril-like stigmas)-----10. **CHLORIDEAE** (p. 270).

Spikelets pedicellate in open or contracted panicles.

Spikelets 1-flowered; leaf blades never broad and net-veined.  
8. **AGROSTIDEAE** (p. 269).

Spikelets 2 to many-flowered (often reduced to 1 floret and a prolonged rachilla joint, in *Orthoclada*, this with net-veined blades).

Glumes as long as the lower floret, usually as long as the spikelet; lemmas awned on the back (except in *Koeleria* and *Sphenopholis*)--9. **AVENEAE** (p. 270).

Glumes shorter than the first floret; lemmas awnless or awned from the tip (from a bifid apex in *Bromus*).

11. **FESTUCEAE** (p. 271).

#### KEY TO THE GENERA.

##### 1. **TRIPSACEAE.**

Pistillate spikelets sunken in recesses in the thickened joints of the rachis; inflorescence of solitary or digitate spikes-----1. *Tripsacum* (p. 272).

Pistillate spikelets inclosed in a bony beadlike involucre-----2. *Coix* (p. 272).

##### 2. **ANDROPOGONEAE.**

Spikelets all perfect.

Inflorescence of 2 to several digitate racemes-----7. *Ischaemum* (p. 274).

Inflorescence a densely flowered hairy panicle.

Spikelets awned-----6. *Erianthus* (p. 274).

Spikelets awnless.

Rachis continuous-----3. *Imperata* (p. 272).

Rachis disarticulating-----4. *Saccharum* (p. 273).

Spikelets not all perfect, the sessile usually perfect, the pedicellate usually staminate or rudimentary (pistillate in *Eriochrysis*).

Fertile spikelet with a hairy-pointed callus formed of the attached supporting rachis joint or pedicel or of the upper part of the peduncle; awns usually long.

Racemes reduced to a single joint, long-peduncled in a simple open panicle-----18. *Rhaphis* (p. 288).

Racemes of few or many joints, not in an open panicle.

Rachis continuous; perfect spikelets pedicellate, disarticulating at the base of the pedicel; awns plumose.

10. *Trachypogon* (p. 276).

Rachis disarticulating, the joints attached to perfect spikelets next above, forming a callus to them.

Racemes solitary, not subtended by leaflike spathes; perfect spikelets several to many above; staminate spikelets several to many below-----17. *Heteropogon* (p. 287).

Racemes several in a flabellate cluster, subtended by leaflike spathes; perfect spikelet 1 in each raceme.

19. *Themeda* (p. 288).

Fertile spikelet without a callus, the rachis disarticulating immediately below the spikelet.

Inflorescence a dense golden brown silky panicle; spikelets awnless, the pedicellate one pistillate-----5. *Eriochrysis* (p. 273).

Inflorescence not a dense golden brown silky panicle; pedicellate spikelet staminate or rudimentary.

Pedice! of the sterile spikelet thickened, appressed to the thickened rachis joint, or adnate to it.

Sessile spikelets sunken in cavities of the thickened rachis, the first glume covering the opening; sterile spikelet obscure.

8. *Manisuris* (p. 275).

Sessile spikelet not sunken in the rachis, the adnate rachis joint and pedice! sunken in the opening of the globose first glume; sterile spikelet large.---9. *Rytidix* (p. 276).

Pedice! of the sterile spikelet distinct, this and the rachis joint usually slender.

Spikelets in reduced racemes of 1 to 5 (rarely 7) joints, these peduncled in open panicles; awns, if present, commonly deciduous.

Pedicellate spikelets staminate.-----15. *Holcus* (p. 286).

Pedicellate spikelets wanting, the pedice! only present.

16. *Sorghastrum* (p. 286).

Spikelets in evident racemes of several to many joints.

Blades cordate, thin; pedicellate spikelets obsolete or present only in the lower part of the delicate subdigitate racemes.-----11. *Arthraxon* (p. 277).

Blades linear, not cordate; pedicellate spikelets present, at least as rudiments.

Inflorescence an elongate panicle of whorled long-peduncled slender glabrous racemes; spikelets muricate, awnless.-----14. *Anatherum* (p. 285).

Inflorescence not a panicle of long-peduncled racemes; spikelets not muricate; racemes commonly conspicuously woolly.

Racemes 2, forking from the summit of the slender peduncle, a staminate awnless spikelet borne in the fork.-----13. *Cymbopogon* (p. 284).

Racemes 1 to many, not forking with a spikelet borne in the fork.-----12. *Andropogon* (p. 277).

### 3. NAZIEAE.

Spikelets solitary, finally reflexed; glumes subulate, awnless.

22. *Leptothrium* (p. 289).

Spikelets 2 or more in a cluster, falling together.

Glumes smooth, connate at base, forming a pitcher-shaped false involucre.

20. *Anthephora* (p. 288).

Glumes covered with hooked spines, forming little burs, not connate.

21. *Nazia* (p. 289).

### 4. MELINIDEAE.

Spikelets awnless; inflorescence an attenuate panicle.---24. *Triscenia* (p. 290).

Spikelets awned; inflorescence a many-flowered panicle.

Glumes awnless, the lemma with a bent or twisted awn.

23. *Arundinella* (p. 289).

Glumes awned, the awns straight; lemma awnless.---25. *Achlaena* (p. 290).

## 5. PANICEAE.

Spikelets unisexual; plants monœcious.

Inflorescence of 2 digitate spikelike racemes, one pistillate, the other staminate.....55. *Mniochloa* (p. 360).

Inflorescence paniculate, the panicle often much reduced.

Panicles large, terminal on the culms or leafy branches, the pistillate spikelets above, the staminate below in the same panicle.

52. *Olyra* (p. 357).

Panicles all axillary or axillary and terminal, the terminal when present wholly staminate.

Fruit laterally compressed, conspicuously gibbous on the upper dorsum .....53. *Lithachne* (p. 358).

Fruit dorsally compressed, lanceolate.....54. *Raddia* (p. 358).

Spikelets perfect.

Axis thickened and corky, the spikelets sunken in cavities in its joints, these disarticulating at maturity.....51. *Stenotaphrum* (p. 356).

Axis not thickened, the spikelets not sunken in it.

Spikelets subtended or surrounded by 1 to many bristles or spines (sterile branchlets), these distinct or more or less connate at base, forming a false involucre.

Bristles persistent; spikelets deciduous.....47. *Chaetochloa* (p. 346).

Bristles falling with the spikelets at maturity.

Bristles solitary, much exceeding the appressed spikelet.

48. *Paratheria* (p. 353).

Bristles numerous below each spikelet or cluster of spikelets.

Bristles not united at base, usually slender, often plumose.

49. *Pennisetum* (p. 353).

Bristles more or less united at the base, forming a bur.

50. *Cenchrus* (p. 354).

Spikelets not subtended nor surrounded by bristles (axis of branchlet extending beyond the base of the uppermost spikelet in *Panicum*, subgenus *PAUROCHAETIUM*).

Fruit cartilaginous-indurate, not rigid, papillose, usually dark-colored, the lemma with white hyaline margins, these not inrolled.

Fruit open at the hyaline summit; inflorescence a narrow grayish-silky panicle .....26. *Leptocoryphium* (p. 291).

Fruit not open at the summit; inflorescence of digitate or flabellately panicled slender racemes.

Spikelets conspicuously long-silky; fruit lanceolate-acuminate; racemes in a flabellate panicle.....27. *Valota* (p. 291).

Spikelets with short pubescence or glabrous; fruit elliptic; racemes digitate or subdigitate.....28. *Syntherisma* (p. 292).

Fruit indurate, rigid (or if thin not hyaline-margined).

Sterile lemma splitting down the middle, the halves inrolled, appearing like two glumes side by side; raceme solitary, the rachis broad-winged .....29. *Thrasya* (p. 296).

Sterile lemma not splitting.

Spikelets solitary, subsessile, placed with the back of the fruit turned away from the rachis.

Inflorescence a solitary erect spikelike raceme, the spikelets swollen on the side toward the rachis and fitting into alternate hollows.....30. *Mesosetum* (p. 297.)

Inflorescence of 2 to many racemes or paniculate.

Rachilla joint and first glume forming a swollen ringlike callus at the base of the spikelet; inflorescence paniculate.

31. *Eriochloa* (p. 298).

Rachilla joint and first glume not forming a callus at the base of the spikelet; inflorescence racemose.

Racemes racemose along the main axis; first glume present.

32. *Brachiaria* (p. 299).

Racemes aggregated at the summit of the culm; first glume wanting-----

33. *Axonopus* (p. 299).  
Spikelets in 2's or 3's or solitary, placed with the back of the fruit turned toward the rachis or pedicellate in panicles.

Fruit long-acuminate, scarcely indurate, both glumes wanting; spikelet sessile, solitary, the stiff racemes horizontal or reflexed at maturity-----

34. *Reimarochloa* (p. 302).  
Fruit not long-acuminate, indurate (if but slightly indurate both glumes present).

First glume typically wanting; spikelets plano-convex, sessile in spikelike racemes-----

35. *Paspalum* (p. 302).  
First glume present; spikelets usually in panicles, biconvex to globose.

Glumes or lemmas or both awned or, if short-pointed only, the summit of the fertile palea not inclosed and the spikelets crowded in short racemes.

Inflorescence of 1-sided racemes along a common axis; glumes 2-lobed (rarely entire), awned from between the lobes; fruit indurate, the palea inclosed at the summit-----

43. *Oplismenus* (p. 343).  
Inflorescence paniculate.

Spikelets long-silky; first glume minute, remote.

46. *Tricholaena* (p. 346).

Spikelets not silky, often scabrous or hispid.

Spikelets with a long-pointed callus at the base.

45. *Chaetium* (p. 346).

Spikelet without a callus---44. *Echinochloa* (p. 345).

Glumes and lemmas awnless (fruit pointed in *Scutachne*).

Lower floret of the spikelet perfect, usually fruitful; spikelets small, turgid, obtuse-----

42. *Isachne* (p. 341).  
Lower floret staminate or neuter.

Second glume and sterile lemma leathery-indurate; fruit mucronate -----

41. *Scutachne* (p. 341).  
Second glume and sterile lemma membranaceous; fruit not mucronate.

Inflorescence a cylindric or interrupted spikelike panicle; fruit either scarcely indurate, the palea not inclosed at the summit, or stipitate and the spikelets with a saccate second glume; aquatics or sub-aquatics.

Second glume inflated-saccate; fruit stipitate.

39. *Sacciolepis* (p. 339).

Second glume not inflated-saccate; fruit scarcely indurate, open at the summit, not stipitate.

40. *Hymenachne* (p. 340).



Inflorescence an open or contracted panicle or, if somewhat spikelike, the fruit not stipitate nor the second glume saccate; fertile lemma chartaceous-indurate.

Culms woody, bamboo-like; spikelets globose, large; fertile lemma and palea bony-indurate, a downy tuft at the apex-----38. *Lasiacis* (p. 335).

Culms not woody nor bamboo-like.

Fertile lemma either with lateral appendages or excavations at the base, the margins usually not inrolled-----37. *Ichnanthus* (p. 333).

Fertile lemma with neither lateral appendages nor excavations at base, the inrolled margins clasping the palea----36. *Panicum* (p. 322).

## 6. ORYZEAE.

Spikelets unisexual; plants monœcious.

Pistillate lemma cylindric, beaked; glumes present; blades broad, elliptic or oblanceolate-oblong-----56. *Pharus* (p. 360).

Pistillate lemma subglobose; glumes wanting; blades narrowly linear.

57. *Luziola* (p. 361).

Spikelets perfect.

Inflorescence a terminal spike; spikelets with long coiled tendril-like awns entangled at the summit of the axis-----61. *Streptochaeta* (p. 364).

Inflorescence an open or contracted panicle; awns if present not coiled.

Glumes awned, about as long as the lemma----60. *Reynaudia* (p. 363).

Glumes awnless, much shorter than the lemma or wanting.

Glumes wanting; lemmas awnless--59. *Homalocenchrus* (p. 362).

Glumes present; lemmas usually awned-----58. *Oryza* (p. 362).

## 7. PHALARIDEAE.

Spikelets strongly compressed, the glumes keeled; sterile florets reduced to small scales adnate to the fertile floret-----62. *Phalaris* (p. 364).

Spikelets not compressed; sterile florets exceeding the fertile floret, awned.

63. *Anthoxanthum* (p. 364).

## 8. AGROSTIDEAE.

Lemmas awned.

Awn trifid (lateral awns rarely minute)-----64. *Aristida* (p. 364).

Awn simple.

Glumes awnless; panicle diffuse-----65. *Muhlenbergia* (p. 367).

Glumes awned; panicle contracted-----68. *Polypogon* (p. 370).

Lemmas awnless.

Inflorescence a cylindric spikelike panicle; glumes abruptly mucronate.

66. *Phleum* (p. 367).

Inflorescence an open or contracted panicle; glumes not abruptly mucronate.

Glumes not longer than the floret, usually much shorter.

67. *Sporobolus* (p. 367).

Glumes longer than the floret-----69. *Agrostis* (p. 371).

## 9. AVENEAE.

Articulation below the spikelet.

Second glume narrowed above; lemma of second floret awned on the back,  
the awn hooked-----70. *Notholcus* (p. 371).

Second glume broadened above; lemmas awnless.

72. *Sphenopholis* (p. 372).

Articulation above the glumes and between the florets.

Spikelets awnless-----73. *Koeleria* (p. 372).

Spikelets awned.

Awn from between the teeth of the lemma, flat, twisted below.

75. *Danthonia* (p. 372).

Awn dorsal, terete, straight or twisted.

Spikelets less than 1 cm. long, erect; panicle dense, spike-like.

71. *Trisetum* (p. 371).

Spikelets more than 1 cm. long, drooping-----74. *Avena* (p. 372).

## 10. CHLORIDEAE.

Plants monœcious or diœcious; pistillate spikelets many-awned; staminate  
spikelets awnless; plant stoloniferous-----87. *Opizia* (p. 384).

Plants with perfect spikelets.

Spike solitary, terminating the culm.

Spikelets with 1 perfect long-awned floret-----80. *Saugetia* (p. 378).

Spikelets with several perfect short-awned florets.

82. *Tripogon* (p. 381).

Spikes 2 or more on each culm.

Spikes racemosely arranged.

Spikelets articulate below the glumes, 1-flowered; maritime grasses  
with stout rhizomes-----77. *Spartina* (p. 373).

Spikelets articulate above the glumes, 2 to several-flowered (the  
second floret rudimentary in *Bouteloua*).

Spikes short and relatively broad; upper floret often reduced  
to the awns-----81. *Bouteloua* (p. 379).

Spikes long and slender; perfect florets 2 or more.

Lemmas awnless or with minute awns, the upper floret  
reduced to an awnless small lemma.

85. *Leptochloa* (p. 382).

Lemmas with awns as long as the body, the upper floret  
reduced to a slender awn-----86. *Gouinia* (p. 384).

Spikes digitate or nearly so.

Spikelets with 2 or more perfect florets.

Rachis extending beyond the spikelets.

84. *Dactyloctenium* (p. 382).

Rachis not extending beyond the spikelets.

83. *Eleusine* (p. 381).

Spikelets with 1 perfect floret only.

Sterile floret wanting; lemma obtuse---76. *Capriola* (p. 373).

Sterile floret present; lemma awned or mucronate.

Fertile floret raised on a long stipe; sterile florets reduced  
to long awns-----79. *Gymnopogon* (p. 377).

Fertile floret not raised on a stipe; sterile florets consist-  
ing of evident lemmas-----78. *Chloris* (p. 374).

## 11. FESTUCEAE.

Lemmas cleft at the summit into numerous awns; panicle contracted, elongate.  
88. *Pappophorum* (p. 385).

Lemmas with a single awn or awnless.

Spikelets (at least the pistillate) with copious long silky hairs on the lemmas or the rachilla; tall reeds with large plummy panicles.

Spikelets unisexual; pistillate spikelets hairy, the staminate glabrous; plants dioecious.....90. *Gynerium* (p. 385).

Spikelets perfect.

Lemmas hairy; rachilla glabrous.....91. *Arundo* (p. 386).

Lemmas glabrous; rachilla hairy.....92. *Pbragmites* (p. 386).

Spikelets not long-hairy, the hairs if present much shorter than the lemma.

Glumes leaflike; spikelets concealed in the upper sheaths; plants dioecious.....89. *Monanthochloë* (p. 385).

Glumes not leaflike; spikelets exposed.

Stigmas elongate, wiry, coiled, tendril-like; spikelets in a long 1-sided raceme.....96. *Streptogyne* (p. 393).

Stigmas not elongate nor wiry.

Blades broad, ovate to elliptic, showing transverse veins between the nerves.

Spikelets 3 to 5-flowered; glumes broad, truncate; panicles small.....94. *Senites* (p. 392).

Spikelets 1 or 2-flowered, the second floret commonly obsolete, the elongate rachilla only present; glumes acuminate; panicles large, diffuse.....95. *Orthoclada* (p. 393).

Blades linear, no transverse veins showing.

Spikelets in 1-sided dense clusters, these at the ends of the few stiff panicle branches.....100. *Dactylis* (p. 394).

Spikelets not in 1-sided clusters.

Lemmas 3 nerved.....93. *Eragrostis* (p. 387).

Lemmas 5 or more nerved.

Lowest 1 to 4 lemmas empty; spikelets firm, strongly compressed.

Plants hermaphrodite, usually more than 50 cm. tall.

97. *Uniola* (p. 393).

Plants dioecious, usually less than 30 cm. tall.

98. *Distichlis* (p. 394).

Lowest lemmas fertile.

Florets horizontally spreading; lemmas cordate at base.

99. *Briza* (p. 394).

Florets ascending; lemmas not cordate.

Lemmas awnless; spikelets small.

Spikelets ovate or elliptic, few-flowered; lemmas keeled.....101. *Poa* (p. 395).

Spikelets linear, many-flowered; lemmas rounded on the back.....103. *Scleropoa* (p. 396).

Lemmas awned or mucronate (if awnless the spikelets large).

Awn from the tip.....102. *Festuca* (p. 395).

Awn from a bifid apex or wanting.

104. *Bromus* (p. 396).

## 12. HORDEAE.

Spikelets solitary at each node of the continuous rachis---105. *Lolium* (p. 396).  
 Spikelets in 3's at each node of the articulate rachis---106. *Hordeum* (p. 396).

## 13. BAMBOSEAE.

Stems climbing or clambering.

Spikelets 2 to several-flowered, racemose---107. *Arthrostyloidium* (p. 397).

Spikelets 1-flowered, in small panicles-----108. *Chusquea* (p. 400).

Stems erect.

Spikelets 1-flowered, in a long dense terminal panicle; culm herbaceous.

109. *Planotia* (p. 400).

Spikelets several to many-flowered, sessile in clusters, these somewhat remote on a common axis; culms woody-----110. *Bambos* (p. 401).

## 1. TRIPSACUM L.

Spikelets unisexual; pistillate spikelets solitary, embedded in the joints of a thickened cartilaginous articulate rachis, the indurate first glume covering the recess in the rachis, the joints readily separating at maturity; staminate spikelets in pairs at the joints of the continuous upper segment of the same rachis, this falling as a whole after anthesis. Stout perennials.

1. *Tripsacum dactyloides* (L.) L. Syst. Nat. ed. 10. 2: 1261. 1759. GAMA GRASS.

*Coix dactyloides* L. Sp. Pl. 972. 1753.

*Tripsacum monostachyum* Willd. Sp. Pl. 4: 202. 1805.

Culms sparingly branching, about 2 meters tall, in large clumps; blades flat, up to 3 cm. wide; inflorescence of 1 to 3 erect spikes.

Shady ravines and moist ground at low altitudes, central and southeastern United States, through the West Indies to South America. Originally described from America, no definite locality given.

Haiti, Santo Domingo, and Trinidad.

## 2. COIX L.

Spikelets unisexual; pistillate spikelets 2 or 3 together, 1 fertile and 1 or 2 rudimentary, inclosed in a bony beadlike involucre (morphologically a subtending leaf sheath); staminate spikelets approximate in 3's (the third sometimes obsolete) on a slender rachis forming a short raceme, the rachis protruding from the orifice of the involucre, these ultimate inflorescences borne on the ends of numerous branches. Broad-leaved perennials.

1. *Coix lacryma-jobi* L. Sp. Pl. 972. 1753.

JOB'S TEARS.

Freely branching, 1 meter or more tall, the cordate clasping blades 2 to 3 cm. broad, the "beads" 8 to 10 mm. long.

Moist ground and waste places, especially near dwellings, throughout tropical America, cultivated as an ornamental and for the ivory or grayish beads; often escaped. Called also "Christ's tears," "camandula," and "lágrimas de Job." Originally described from the East Indies.

Common in the West Indies and to be found on probably all of the islands.

## 3. IMPERATA Cyrillo.

Spikelets all perfect, awnless, all pedicellate, articulate below the glumes, the rachis not disjoining, the slender racemes in a narrow spikelike panicle; glumes membranaceous, densely clothed with long silky hairs.

Panicle rarely over 10 cm. long; spikelets 4 mm. long-----1. *I. brasiliensis*.

Panicle and blades elongate; spikelets 3 mm. long-----2. *I. contracta*.

1. *Imperata brasiliensis* Trin. Mém. Acad. St. Pétersb. VI. Math. Phys. Nat. 2: 331. 1832.

An erect tufted perennial with scaly rhizomes, the flat leaves mostly clustered toward the base, the slender simple, nearly naked culm 0.5 to 1 meter tall, with a pale silky narrow panicle.

Open rather dry ground at low altitudes, Bahamas and southern Mexico to Brazil. Originally described from Brazil. The type specimen in the Trinius Herbarium is labeled "S. da Lapa."

Bahamas (Andros, Eleuthera, and New Providence), Cuba, Jamaica (Lititz, Harris 11660), Dominica, and Trinidad.

2. *Imperata contracta* (H. B. K.) Hitchc. Rep. Mo. Bot. Gard. 4: 146. 1893.

*Saccharum contractum* H. B. K. Nov. Gen. & Sp. 1: 182. 1816.

*Saccharum caudatum* Meyer, Prim. Fl. Esseq. 68. 1818.

*Anatherum caudatum* Schult. Mant. 2: 445. 1824.

*Anatherum portoricense* Spreng. Syst. Veg. 1: 290. 1825.

*Imperata caudata* Trin. Mém. Acad. St. Pétersb. VI. Math. Phys. Nat. 2: 331. 1832.

Taller than the preceding, the culms leafy, the panicle as much as 40 cm. long.

Swamps and moist open ground, southern Mexico and the West Indies to northern South America. The type of *Saccharum contractum* is from Colombia; of *S. caudatum* from British Guiana; of *Anatherum portoricense* from Porto Rico.

Cuba (Colonía San Rafael, León 5682), Jamaica, Santo Domingo, Porto Rico, Guadeloupe, Martinique, Dominica, Trinidad, and Tobago.

#### 4. SACCHARUM L.

Spikelets all perfect, awnless, a ring of long silky spreading hairs at the base of each, one of the pair sessile; rachis articulate, the slender racemes arranged in a large panicle, the main axis and branches not disjoining.

1. *Saccharum officinarum* L. Sp. Pl. 54. 1753.

SUGAR CANE.

*Saccharum violaceum* Tussac, Fl. Antill. 1: 160. pl. 25. 1808.

Gigantic perennials with broad leaves, the overlapping sheaths falling from the short-jointed lower part of the culms, the great plummy panicles pinkish silvery; forming seed sparingly.

Cultivated in tropical and subtropical countries of both hemispheres. The West Indian specimens in herbaria are probably all from cultivated plants. Originally described from India. *Saccharum violaceum* was described from Jamaica. The Spanish name is "caña de azúcar."

#### 5. ERIOCHRYSIS Beauv.

Spikelets awnless, the sessile spikelets perfect, the pedicellate spikelets pistillate, smaller but fruitful, readily falling, the rachis rather tardily disjoining; racemes short, crowded in a narrow dense silky interrupted spikelike panicle.

1. *Eriochrysis cayennensis* Beauv. Ess. Agrost. 8. pl. 4. f. 11. 1812. (Beauvois spells the name "Cayanensis.")

*Saccharum cayennense* Benth. Journ. Linn. Soc. Bot. 19: 66. 1881.

An erect unbranched perennial 1 to 2 meters or more tall, the long narrow blades densely velvety, the compact silky golden brown panicle 10 to 12 cm. long.

Moist slopes and savannas, southern Mexico and the West Indies to Uruguay. The type locality is presumably Cayenne, though no locality is mentioned in the original description.

Porto Rico (near San Juan and Maricao), Santo Domingo, Haiti, Martinique, and Trinidad (Arima, *Broadway* 2374).

## 6. *ERIANTHUS* Michx.

Spikelets all perfect, awned, silky-pubescent; rachis disjointing; racemes arranged in a large dense panicle.

### 1. *Erianthus saccharoides* Michx. Fl. Bor. Amer. 1: 55. 1803.

A robust tall erect unbranched perennial with long harshly pubescent blades and tawny or purplish plummy panicles up to 40 cm. long.

Swamps and moist soil from New Jersey to Florida and Texas on the Coastal Plain; also in Cuba. No definite locality is mentioned in the original description, but the range is given "a Carolina ad Floridam."

Cuba (Laguna Jovero to Laguna Herradura, *Shafer* 10934, and Laguna San Mateo, *Wright* 3903).

*ERIANTHUS RAVENNAE* (L.) Beauv. (*Saccharum jamaicense* Trin.,<sup>1</sup> *Erianthus jamaicensis* Anderss.; *E. ravennae* var. *jamaicensis* Hack.) was described by Trinius from Jamaica, but his specimen was doubtless a cultivated plant, the species being grown for ornament in warm climates.

## 7. *ISCHAEMUM* L.

Sessile spikelets perfect, awned; pedicellate spikelets perfect but not always fruitful; rachis disjointing; racemes 2 to several, digitate, in pairs, usually so appressed to each other as to appear like a single spike.

Racemes 2 at the apex of the culms; first glume strongly rugose across the back.

### 1. *I. rugosum*.

Racemes several in a cluster at the apex of the culms; first glume not rugose.

### 2. *I. latifolium*.

### 1. *Ischaemum rugosum* Salisb. Icon. Stirp. Rar. 1: pl. 1. 1791.

A branching annual, geniculate below, with bearded nodes and flat, sparsely pilose blades, the 2 erect racemes so closely appressed to each other as often to appear like a single spike.

Waste places in Cuba and Jamaica; introduced from the Old World. Originally described from India.

### 2. *Ischaemum latifolium* (Spreng.) Kunth, Rév. Gram. 1: 168. 1829.

*Andropogon latifolius* Spreng. Syst. Veg. 1: 286. 1825.

*Ischaemopogon latifolius* Griseb. Fl. Brit. W. Ind. 560. 1864.

Larger and stouter than the preceding, decumbent, rooting at lower nodes, the glabrous blades up to 20 cm. long and 3 cm. wide, the inflorescence fan-shaped.

Moist, shady places, southern Mexico and the Lesser Antilles to Brazil and Ecuador. Originally described from the West Indies, Guadeloupe and Martinique being mentioned.

Guadeloupe, Dominica, Martinique, St. Lucia, St. Vincent, and Trinidad.

*ISCHAEMUM ANGUSTIFOLIUM* (Trin.) Hack. In the herbarium of the Botanical Department, Trinidad, is a specimen of this collected in 1895 by J. H. Hart, and said to be introduced. It is distinguished by its elongate narrow blades.

*RHYTACHNE ROTTBOELLIODES* Desv.; Hamilt. Prodr. Pl. Ind. Occ. 11. 1825. Described from a specimen purporting to be from the "Antilles" in the

<sup>1</sup> Mém. Acad. St. Pétersb. VI. Math. Phys. Nat. 2: 312. 1832.

Desvaux Herbarium. The genus is an African one and the locality given is probably an error as with many other Desvaux specimens.<sup>1</sup>

### 8. MANISURIS L.

Sessile spikelets perfect, awnless, sunken in hollows in the thickened articulate joints of the rachis, the flat, often rugose, indurate first glume covering the hollow; pedicellate spikelet sterile, the pedicel thickened, appressed or adnate to the rachis joint; racemes solitary.

First glume wrinkled or furrowed; plants perennial.

Plants annual, branching ..... 1. *M. exaltata*.

Plants perennial, simple ..... 4. *M. leonina*.

First glume wrinkled or furrowed; plants perennial.

First glume winged ..... 5. *M. aurita*.

First glume not winged.

First glume transversely wrinkled ..... 2. *M. loricata*.

First glume with 3 longitudinal furrows ..... 3. *M. impressa*.

1. *Manisuris exaltata* (L. f.) Kuntze, Rev. Gen. Pl. 2: 779. 1891. RICE GRASS.

*Rottboellia exaltata* L. f. Suppl. Pl. 114. 1781.

*Stegosia exaltata* Nash, N. Amer. Fl. 17: 84. 1909.

A stout branching leafy annual with hispid sheaths, long flat scabrous blades, and numerous axillary racemes, the summit of these dwindling and bearing abortive spikelets only.

A weed in moist soil, in several of the West Indian islands, introduced from southern Asia. Originally described from India.

Cuba, Jamaica, Haiti, Grenada, and Trinidad.

2. *Manisuris loricata* (Trin.) Kuntze, Rev. Gen. Pl. 2: 780. 1891.

*Rottboellia loricata* Trin. Mém. Acad. St. Pétersb. VI. Math. Phys. Nat. 2: 250. 1832.

*Rottboellia filifolia* Wright, Anal. Acad. Cienc. Habana 8: 209. 1871.

*Coelorachis loricata* Nash, N. Amer. Fl. 17: 85. 1909.

A slender erect unbranched tufted perennial with narrow involute blades, the solitary terminal raceme up to 25 cm. long.

Pine barren swamps, western Cuba and Brazil. Originally described from Serra da Lapa, Brazil. The type specimen of *Rottboellia filifolia* is Wright 3905, collected at Dayaniguas, Cuba.

3. *Manisuris impressa* (Griseb.) Kuntze, Rev. Gen. Pl. 2: 780. 1891.

*Rottboellia impressa* Griseb. Cat. Pl. Cub. 235. 1866.

*Coelorachis impressa* Nash, N. Amer. Fl. 17: 85. 1909.

Stouter than the preceding, 1 meter or more tall, the culm branching, bearing terminal and axillary racemes 10 to 15 cm. long.

Only known from the type collection, Wright 3904, from El Salado, Cuba.

4. *Manisuris leonina* sp. nov.

Plants perennial in small tufts from slender hard rhizomes, glabrous throughout except as noted; culms erect, 60 to 75 cm. tall, rather rigid, branching, the branches erect, the internodes flat or concave on one side; sheaths overlapping on the lower part of the culm, the upper shorter than the internodes, usually stiffly ciliate at the summit; blades narrower than the summit of the sheath, 10 to 45 cm. long, subterete, erect, the summit loosely curled; racemes 5 to 10 cm. long, terete, about 2 mm. thick, purplish, the joints 4 to 5 mm. long; fertile

<sup>1</sup> See Hack. in DC. Monogr. Phan. 6: 274. 1889; Hitchcock & Chase, Contr. U. S. Nat. Herb. 15: 38. 166. 1910.

spikelet closely appressed to the hollow of the rachis, 4 mm. long, nearly 2 mm. wide, sometimes two borne on a joint, the slender pedicel of the sterile spikelet lying between their inner margins; first glume acute, smooth, depressed across the base before maturity, not reticulate, pitted, nor winged; second glume nearly as long as the first, acuminate; sterile lemma hyaline, the fertile lemma and palea much reduced; pedicel of sterile floret relatively slender, the minute sterile spikelet reduced to two glumes.

Type in U. S. National Herbarium, no. 950205, collected in pine barren, San Julián, south of Guane, Province of Pinar del Río, Cuba, December 27, 1916, by Brother León (no. 6981).

In the rather frequent presence of a pair of sessile fertile spikelets at a joint, this species departs from the arrangement typical in *Manisuris*, an arrangement known in but a single anomalous species of the Philippines, *Rottboellia triflora* Hubbard, belonging to the same group. The above description is drawn from the single specimen cited. It is possible the pair of spikelets is an individual variation.

#### 5. *Manisuris aurita* (Steud.).

*Rottboellia aurita* Steud. Syn. Pl. Glum. 1: 361. 1854.

Tall, like *M. impressa*, the erect branches with numerous slender racemes 6 to 10 cm. long, the first glume marginate and winged above, foveolate or pitted on the back.

Grassy hillsides, Brazil, whence originally described, to Trinidad; in the latter locality known from a specimen in the Gray Herbarium collected by Finlay.

#### 9. *RYTILIX* Raf.

Sessile spikelet perfect, the first glume globose, indurate, alveolate, the adnate rachis joint and pedicel fitting into the opening of the glume; pedicellate spikelet relatively large, sterile.

#### 1. *Ryttilix granularis* (L.) Skeels, U. S. Dept. Agr. Bur. Pl. Ind. Bull. 282: 20. 1913.

*Cenchrus granularis* L. Mant. Pl. 575. 1771.

*Manisuris granularis* Swartz, Prodr. Veg. Ind. Occ. 25. 1788.

*Ryttilix glandulosa* Raf. Bull. Bot. Seringe 1: 219. 1830.

*Hackelochloa granularis* Kuntze, Rev. Gen. Pl. 2: 776. 1891.

A coarsely hispid, freely branching annual with flat blades and numerous terminal and axillary racemes 1 to 2.5 cm. long.

A common weed throughout tropical America, introduced from the Old World. Originally described from the East Indies. In the West Indies found on the larger islands and south to Martinique.

#### 10. *TRACHYPOGON* Nees.

Perfect spikelet awned, pedicellate, the pedicel disjoining obliquely, forming a sharp callus below the spikelet; staminate spikelet subsessile, persistent on the slender continuous rachis; racemes solitary or few to several, digitate.

Awn 10 to 12 cm. long, conspicuously plumose-----1. *T. gouini*.  
Awn mostly not over 5 cm. long, appressed-plumose on the lower part, scabrous above.

Blades involute; racemes usually solitary on the culms-----2. *T. filifolius*.

Blades flat; racemes usually 2 or 3, sometimes solitary-----3. *T. plumosus*.



1. *Trachypogon gouini* Fourn. Mex. Pl. 2: 66. 1886.

A tall slender glabrous unbranched perennial, usually geniculate below, sparingly producing scaly rhizomes; blades involute, the narrow pale feathery raceme up to 30 cm. long.

Open ground in the vicinity of Habana, Cuba, introduced from eastern Mexico. Originally described from Veracruz.

2. *Trachypogon filifolius* (Hack.) Hitchc. Contr. U. S. Nat. Herb. 12: 191. 1909.

*Trachypogon polymorphus* var. *filifolius* Hack. in Mart. Fl. Bras. 2<sup>3</sup>: 264. 1883.

More slender than the preceding, without rhizomes, the raceme with coarser shorter less feathery awns.

Sandy pine woods, western Cuba; also in Brazil, whence originally described.

3. *Trachypogon plumosus* (Humb. & Bonpl.) Nees, Agrost. Bras. 344. 1829.

*Andropogon plumosus* Humb. & Bonpl.; Willd. Sp. Pl. 4: 918. 1806.

*Trachypogon polymorphus* var. *plumosus* Hack. in Mart. Fl. Bras. 2<sup>3</sup>: 265. 1883.

Usually stouter than the other two, the culms sparingly branching, the blades flat, the spikes commonly 2 or 3.

Wet sandy savannas, Central America to Brazil. Originally described from Cumaná, Venezuela.

Trinidad (Piarco Savanna, *Hitchcock* 10342; St. Joseph, *Hitchcock* 10185, and Arima, *Eggers* 1379).

11. *ARTHRAxON* Beauv.

Perfect spikelets awned, sessile, the secondary spikelet and its pedicel wanting or present only at the lower joints of the filiform articulate rachis; racemes terminating the branches of a dichotomously forking panicle, in appearance subdigitate or fascicled.

1. *Arthraxon quartinianus* (A. Rich.) Nash, N. Amer. Fl. 17: 99. 1912.

*Alectoridia quartiniana* A. Rich. Tent. Fl. Abyss. 2: 448. 1852.

*Arthraxon ciliaris* subsp. *quartinianus* Hack. in DC. Monogr. Phan. 6: 356. 1889.

A weak-stemmed, laxly branching creeping annual, with ascending flowering branches, bearing flat thin ovate blades cordate at base and flabellate fascicles of slender spikes.

Shady banks, Jamaica and Guadeloupe, introduced from tropical regions of the Old World. Originally described from Abyssinia.

12. *ANDROPOGON* L.

Sessile spikelet perfect, usually awned; pedicellate spikelet staminate or neuter; rachis articulate; racemes solitary, digitate, or approximate along a continuous main axis. The species with woolly inflorescence are often called "barba de indio" in the Spanish islands. In the English islands *Andropogon bicornis* and *A. glomeratus* are called "foxtail."

Sterile or pedicellate spikelets as large as the perfect ones or larger, imbricate; racemes mostly single. (See also *A. pertusus* and *A. annulatus* with several racemes.)

Plants annual; outer glume of sterile spikelet large, bractlike, partly concealing the perfect spikelets.....1. *A. fastigiatus*.

Plants perennial; sterile spikelets not much larger than fertile ones, not concealing them.

Peduncle glabrous below the raceme.....10. *A. caricosus*.

Peduncle pubescent below the raceme.....11. *A. nodosus*.

Sterile or pedicellate spikelets much smaller than the fertile ones, often rudimentary (about as large in *A. pertusus* and *A. annulatus* with several racemes).

Racemes solitary at the ends of the culms or branches, from bractlike sheaths; rachis joints clavate, the apex with a cuplike hollow. (Subgenus *SCHIZACHYRIUM*.)

Plants annual.

Culms weak, decumbent; blades obtuse, 2 to 4 cm. long; peduncles capillary, spreading -----2. *A. brevifolius*.

Culms erect; blades acute, usually 5 to 10 cm. long; peduncles slender, but not capillary -----3. *A. malacostachyus*.

Plants perennial.

Rachis conspicuously flexuous, very slender, the spikelets spreading.

Blades flat; racemes very numerous in a corymbose panicle; plants robust -----4. *A. condensatus*.

Blades involute; racemes few; plants slender.

Racemes densely white-villous with long hairs; blades firm. -----6. *A. gracilis*.

Racemes sparsely villous; blades rather soft.

-----7. *A. cubensis*.

Rachis straight, the spikelets appressed or narrowly ascending.

Spikelets awnless.

Racemes 1 to 2 cm. long, partly inclosed in the subtending spathe, numerous, aggregated in a narrow panicle. -----8. *A. virgatus*.

Racemes 4 to 8 cm. long, few, exserted. -----9. *A. salzmanni*.

Spikelets awned.

First glume of the sessile spikelet villous.

-----12. *A. hirtiflorus*.

First glume of the sessile spikelet glabrous or nearly so.

Blades terete-filiform; sessile spikelet 1.5 mm. broad.

-----5. *A. multinervosus*.

Blades flat or folded or sometimes involute toward the apex.

Sessile spikelet about 4 mm. long, 1 mm. wide; blades not over 1.5 mm. wide.

-----13. *A. tener*.

Sessile spikelet about 5 mm. long; blades 2 to 5 mm. wide -----14. *A. semiberbis*.

Racemes 2 or more together at the ends of the culms or branches.

Plants annual; racemes several on capillary flexuous peduncles.

-----15. *A. piptatherus*.

Plants perennial; peduncles not capillary nor flexuous.

Racemes numerous or several arranged along an axis, forming a panicle.

Pedicellate spikelet much smaller than the fertile one, the latter not pitted -----18. *A. saccharoides*.

Pedicellate spikelet about as large as the fertile one.

First glume with a pinhole-like pit on the back.

-----16. *A. pertusus*.

First glume not pitted -----17. *A. annulatus*.

Racemes 2 to 4 (sometimes more in *A. schoanus*), fascicled, subtended by a bladeless sheath (spathe), exserted or partly included in it.

Spikelets awnless.

Plants robust, 1.25 to 2 meters tall; spathes aggregated in a corymbose, usually dense inflorescence.

19. *A. bicornis*.

Plants slender, usually less than 1 meter tall; spathes not aggregated.

Sessile spikelets about 3 mm. long; blades usually not over 2 mm. wide, the apex acuminate.

20. *A. leucostachyus*.

Sessile spikelets about 4 mm. long; blades 3 to 5 mm. wide, the apex boat-shaped—21. *A. selloanus*.

Spikelets awned.

Pairs of racemes few, terminal on the culms or the few simple branches, the common peduncle long-exserted.

22. *A. nashianus*.

Pairs of racemes several to many, subtended by well-developed spathes.

Blades involute; axis of raceme slender but straight.

23. *A. urbanianus*.

Blades flat; axis of racemes delicate and flexuous.

Racemes aggregated in a dense club-shaped or corymbose inflorescence, the ultimate spathes not over 2 mm. wide, rarely equaling their racemes—25. *A. glomeratus*.

Racemes not aggregated, the ultimate spathes 3 to 5 mm. wide, much exceeding their racemes.

24. *A. virginicus*.

1. *Andropogon fastigiatus* Swartz, Prodr. Veg. Ind. Occ. 26. 1788.

*Diectomis fastigiata* H. B. K. Nov. Gen. & Sp. 1: 193. 1816.

*Sorghum fastigiatum* Kuntze, Rev. Gen. Pl. 2: 791. 1891.

A slender erect glabrous annual with flat linear blades and firm ligules up to 2 cm. long; culms freely branching above, the racemes broad, with conspicuous sterile spikelets and geniculate awns about 4 cm. long.

Dry open ground, southern Mexico and the West Indies to Brazil. Originally described from Jamaica.

Cuba, Jamaica, Haiti, Santo Domingo, Porto Rico, and Grenada.

2. *Andropogon brevifolius* Swartz, Prodr. Veg. Ind. Occ. 26. 1788.

*Andropogon obtusifolius* Poir. in Lam. Encycl. Suppl. 1: 583. 1810.

*Pollinia brevifolia* Spreng. Pl. Pugill. 2: 13. 1815.

*Schizachyrium brevifolium* Nees; Kunth, Enum. Pl. 1: 488. 1833.

*Sorghum brevifolium* Kuntze, Rev. Gen. Pl. 2: 791. 1891.

A slender trailing or reclining glabrous branching annual, with flat obtuse spreading blades and delicate racemes with small spikelets and awns about 8 mm. long.

Moist banks, tropical regions of both hemispheres. Originally described from Jamaica; *A. obtusifolius* described from Porto Rico. To be found in probably all of the West Indian islands from Cuba to Trinidad. Not represented in collections from the Bermudas and the Bahamas.

3. *Andropogon malacostachyus* Presl, Rel. Haenk. 1: 337. 1830.

*Schizachyrium malacostachyum* Nash, N. Amer. Fl. 17: 102. 1912.

A slender erect glabrous branching annual up to 50 cm. high, the flat linear acute blades ascending, the numerous racemes erect, more or less fascicled, the geniculate awns about 12 mm. long.

Dry hills, southern Mexico and Central America; also Cuba, in the vicinity of Habana.

4. *Andropogon condensatus* H. B. K. Nov. Gen. & Sp. 1: 188. 1816.

*Andropogon microstachyus* Desv.; Hamilt. Prodr. Pl. Ind. Occ. 8. 1825.

*Schizachyrium condensatum* Nees, Agrost. Bras. 333. 1829.

*Pollinia microstachya* Desv. Opusc. 70. 1831.

A tall robust tufted glabrous perennial with compressed culms, repeatedly branching toward the summit, forming a large corymbose mass of racemes with very flexuous rachises and delicate awns about 12 mm. long.

Open, rather dry ground, eastern Mexico and the southern West Indies to Argentina. Originally described from Colombia; *A. microstachyus* described from the Antilles.

Guadeloupe, Dominica, Martinique, St. Lucia, St. Vincent, Grenada, Trinidad, and Tobago.

5. *Andropogon multinervosus* (Nash).

*Schizachyrium multinervosum* Nash, N. Amer. Fl. 17: 109. 1912.

A wiry, sparingly branching perennial with filiform blades and few racemes with delicate awns.

Palm barrens, Madruga and Camaguey, Cuba, the type specimen from Madruga, Britton & Shafer 608.

6. *Andropogon gracilis* Spreng. Syst. Veg. 1: 284. 1825.

*Andropogon juncifolius* Desv.; Hamilt. Prodr. Pl. Ind. Occ. 9. 1825.<sup>1</sup>

*Sorghum gracile* Kuntze, Rev. Gen. Pl. 2: 791. 1891.

*Schizachyrium gracile* Nash in Small, Fl. Southeast. U. S. 60. 1903.

A densely tufted slender erect wiry glabrous perennial with filiform blades and delicate pale feathery racemes 2 to 5 cm. long, the delicate awns 1 to 1.5 cm. long.

Rocky hills and banks, southern Florida and the West Indies. Originally described from Hispaniola. The type of *A. juncifolius* is from Santa Cruz [St. Croix]. Described as *A. scoparius* by Richard.<sup>2</sup>

Bahamas, Cuba, Jamaica, Haiti, Santo Domingo, Porto Rico, and Guadeloupe.

7. *Andropogon cubensis* Hack. Flora 68: 121. 1885.

*Sorghum cubense* Kuntze, Rev. Gen. Pl. 2: 791. 1891.

*Schizachyrium cubense* Nash, N. Amer. Fl. 17: 109. 1912.

Similar to the preceding; culms taller, the racemes but sparsely silky, the awns less than 1 cm. long.

Known only from the type collection from an unrecorded locality in Cuba (Wright 3898), and from a collection from the Isle of Pines (Britton & Wilson 14291).

8. *Andropogon virgatus* Desv.; Hamilt. Prodr. Pl. Ind. Occ. 9. 1825.

*Hypogynium spathiflorum* Nees, Agrost. Bras. 366. 1829.

*Anatherum virgatum* Desv. Opusc. 71. 1831.

*Andropogon spathiflorus* Kunth, Enum. Pl. 1: 496. 1833.

*Andropogon inermis* Steud. Syn. Pl. Glum. 1: 390. 1854.

*Anatherum spathiflorum* Griseb. Cat. Pl. Cub. 236. 1866.

*Anatherum inermis* Griseb. Cat. Pl. Cub. 236. 1866.

A tall glabrous tufted perennial with compressed rigid culms, long linear blades, and elongate panicles of small glabrous racemes partly inclosed in rufous or purplish spathes.

<sup>1</sup> It is uncertain which of these names is the earlier.

<sup>2</sup> In Sagra, Hist. Cuba 11: 320. 1850.

Wet sandy open swamps or savannas, West Indies and Central America to Brazil. Originally described from the "Antilles." The type of *Hypogynium spathiflorum* is from Brazil and that of *Anatherum inerme* from Colombia.

Cuba, Santo Domingo, Porto Rico, and Trinidad.

9. *Andropogon salzmanni* (Trin.) Nash, N. Amer. Fl. 17: 104. 1912.

*Rottboellia salzmanni* Trin.; Steud. Syn. Pl. Glum. 1: 361. 1854.

*Andropogon imberbis* var. *muticus* Hack. in DC. Monogr. Phan. 6: 380. 1889.

A glabrous, sparingly branched, ascending perennial with compressed culms, long linear flexuous or curled blades, and yellow, nearly glabrous racemes of appressed awnless spikelets.

Sandy hills, southern Mexico to Brazil; also in a few West Indian islands. Originally described from Brazil.

Guadeloupe, Dominica, and Martinique.

10. *Andropogon caricosus* L. Sp. Pl. ed. 2. 1840. 1763.

*Andropogon annulatus* var. *subrepens* Hack. Notizbl. Bot. Gart. Berlin 1: 327. 1897.

A decumbent, freely branched low perennial with flat blades 2 to 8 cm. long and solitary or paired racemes, the sterile spikelets as conspicuous as the fertile ones, giving the appearance of a flat 2-ranked scaly spike; awns slender, twisted, and bent.

Waste places; introduced in a few places in the West Indies from southern Asia. Originally described from India. *Andropogon annulatus* var. *subrepens* was described from Guadeloupe, Duss 3678 being the type.

Cuba (Province of Habana) and Guadeloupe.

11. *Andropogon nodosus* (Willem.) Nash, N. Amer. Fl. 17: 122. 1912.

*Dichanthium nodosum* Willem. Ann. Bot. Usteri 18: 11. 1796.

Similar to the preceding, somewhat larger, blades and racemes longer.

Waste places; introduced in a few places in the West Indies from the Tropics of the Old World. Originally described from Mauritius. Probably only a variety of *A. caricosus*.

Antigua, Guadeloupe, and Barbados.

12. *Andropogon hirtiflorus* (Nees) Kunth, Rév. Gram. 2: 569. 1832.

*Streptachne domingensis* Spreng.; Schult. Mant. 2: 188. 1824.

*Schizachyrium hirtiflorus* Nees, Agrost. Bras. 334. 1829.

*Aristida? domingensis* Kunth, Rév. Gram. 1: 62. 1829.

*Andropogon oligostachyus* Chapm. Fl. South. U. S. 581. 1860.

*Andropogon semiberbis* var. *incertus* Hack. in DC. Monogr. Phan. 6: 370. 1889.

*Schizachyrium domingense* Nash, N. Amer. Fl. 17: 103. 1912.

*Andropogon domingensis* Hubbard, Proc. Amer. Acad. 49: 493. 1913, not Steud. 1821.

A tall slender erect tufted flat-stemmed perennial, with long narrow flat blades and erect short-pilose racemes, the twisted awns about 1 cm. long.

Rocky or gravelly hills or flats, Florida, through the West Indies to Paraguay. Originally described from Brazil. The type of *Streptachne domingensis* is from Santo Domingo; of *Andropogon oligostachyus* from middle Florida, and of *A. semiberbis* var. *incertus* from eastern Cuba (Wright 1558).

Cuba, Jamaica (southern Manchester), Haiti (Marmalade), and Porto Rico (Maricao).

13. *Andropogon tener* (Nees) Kunth, Rév. Gram. 2: 565. 1832.

*Schizachyrium tenerum* Nees, Agrost. Bras. 336. 1829.

Similar to the preceding, densely tufted, more slender, the blades narrower, more or less involute, the numerous slender racemes rarely 5 cm. long.

Grassy hills and rocky cliffs, southern United States to Argentina. Originally described from Brazil.

Cuba (Province of Pinar del Río) and Jamaica (in the Blue Mountains).

14. *Andropogon semiberbis* (Nees) Kunth, Enum. Pl. 1: 496. 1833.

*Schizachyrium semiberbe* Nees, Agrost. Bras. 336. 1829.

Similar to no. 12, stouter, taller, often glaucous; blades up to 5 mm. wide; racemes numerous toward the summit of the culm.

Grassy hills and savannas, Florida, through the West Indies to Brazil. Originally described from Brazil.

Bahamas (New Providence), Cuba, Haiti, Santo Domingo, Porto Rico, and Trinidad (St. Joseph, Hitchcock 10194).

15. *Andropogon piptatherus* Hack. in Mart. Fl. Bras. 2<sup>o</sup>: 293. 1883.

*Amphilophis piptatherus* Nash, N. Amer. Fl. 17: 127. 1912.

A weak-stemmed branching annual with flat scabrous blades and loose fascicles of racemes with twisted bent awns about 3 cm. long.

Moist rocky cliffs and shady banks, Mexico to Brazil; also in Jamaica and Santo Domingo. Originally described from Brazil.

16. *Andropogon pertusus* (L.) Willd. Sp. Pl. 4: 922. 1806. SEYMOUR GRASS.

*Holcus pertusus* L. Mant. Pl. 2: 301. 1771.

An ascending branching tufted perennial with bearded nodes, pubescent blades, and somewhat fan-shaped panicles of several to many villous racemes with twisted bent awns about 2.5 cm. long.

Roadsides and open grassy places, tropics of the Old World; introduced in the West Indies. Originally described from India. This species is described by Nash<sup>1</sup> as *Amphilophis ischaemum* (L.) Nash (*Andropogon ischaemum* L.), an Old World species with glumes not pitted. It may be that *A. pertusus* is only a form of *A. ischaemum* with pitted glumes.

Jamaica, Antigua, Guadeloupe, Dominica, Martinique, Grenada, and Barbados.

16a. *Andropogon pertusus* var. *panormitanus* (Parl.) Hack. in DC. Monogr. Phan. 6: 481. 1889.

*Andropogon panormitanus* Parl. "in Diar. Congr. Venezia 1847"; Fl. Ital. 1: 140. 1848.

Differs from the species in having glabrous nodes and nearly glabrous blades.

Roadsides and open grassy places, warmer parts of the Old World. Introduced in the West Indies. Called "sour-grass" in Tobago. Originally described from Sicily. This appears to be what was described by Richard<sup>2</sup> as *Andropogon ischaemum*.

St. Croix, Antigua, St. Vincent, Barbados, Trinidad, and Tobago.

17. *Andropogon annulatus* Forsk. Fl. Aegypt. Arab. 173. 1775.

Resembling *A. pertusus* but differing in the absence of the pit on the back of the glumes and in the more imbricate spikelets; nodes bearded.

A native of the Old World, originally described from Egypt. Introduced in Cuba.

18. *Andropogon saccharoides* Swartz, Prodr. Veg. Ind. Occ. 26. 1788.

*Andropogon saccharoides* subsp. *leucopogon* subvar. *paucirameus* Hack. in DC. Monogr. Phan. 6: 497. 1889.

*Sorghum saccharoides* Kuntze, Rev. Gen. Pl. 2: 792. 1891.

<sup>1</sup>N. Amer. Fl. 17: 124. 1912.

<sup>2</sup>In Sagra, Hist. Cuba 11: 320. 1850.

*Holcus saccharoides* Kuntze in Stuckert, Anal. Mus. Nac. Buenos Aires 11: 48. 1904.

*Amphilophis saccharoides* Nash, N. Amer. Fl. 17: 125. 1912.

*Andropogon saccharoides* var. *surius* Krause, Beiheft Bot. Centralbl. 32: 334. 1914.

A tall erect unbranched perennial with brittle culms, rather firm long flat blades, and an oblong pale silky panicle of numerous racemes, the delicate awns 1.5 to 2 cm. long.

Rocky hills and grassy slopes, southwestern United States to northern South America and the West Indies.

Originally described from Jamaica. The subvariety *paucirameus* was described from Cuba (Wright 1556 being the type) and the variety *surius* from Barbados (Wiegand 2085). The Cuban specimens were referred by Hitchcock<sup>1</sup> to *A. leucopogon* Nees. This is one of the grasses called "rabo de zorra" in Cuba.

Cuba, Jamaica, Haiti, Santo Domingo, western Porto Rico, Antigua, and Martinique.

19. *Andropogon bicornis* L. Sp. Pl. 1046. 1753.

*Anatherum bicornis* Beauv. Ess. Agrost. 128. 1812.

*Saccharum bicornis* Griseb. Abh. Ges. Wiss. Göttingen 7: 266. 1857.

*Sorghum bicornis* Kuntze, Rev. Gen. Pl. 2: 791. 1891.

A tall robust tufted perennial with long linear blades, scabrous on the margin, and large feathery corymbose inflorescence of delicate racemes, one, sometimes two, of the uppermost pediceled spikelets larger than the fertile ones, the other pediceled spikelets rudimentary. Has much the habit of *A. condensatus*, distinguished from that by the awnless spikelets and paired racemes.

Grassy hills and banks, southern Mexico to Brazil and widely distributed in the West Indies. The type specimen is probably from Jamaica, though the localities mentioned with the original description are: "Brasilica, Jamaica." Sometimes called "ridging grass."

Cuba, Jamaica, Haiti, Santo Domingo, Porto Rico, St. Thomas, St. Jan, Tortola, St. Kitts, Antigua, Montserrat, Dominica, Martinique, St. Vincent, Grenada, Trinidad, and Tobago.

20. *Andropogon leucostachyus* H. B. K. Nov. Gen. & Sp. 1: 187. 1816.

*Anatherum domingense* Roem. & Schult. Syst. Veg. 2: 809. 1817.

*Andropogon domingensis* Steud. Nom. Bot. 45. 1821.

*Sorghum leucostachyum* Kuntze, Rev. Gen. Pl. 2: 792. 1891.

A slender, densely tufted erect perennial, the elongate blades with a deeply impressed midvein; racemes 2 or 3 on slender exserted peduncles, the spikelets obscured by the copious long silky hairs. Foliage villous in some of the Trinidad specimens, the subvar. *subvillosus* Hack.

Cliffs and grassy slopes, West Indies and southern Mexico to Brazil. Originally described from Venezuela. The type of *Anatherum domingense* collected in "Domingo" by Poiteau.

Cuba, Jamaica, Haiti, Santo Domingo, Porto Rico, St. Thomas, and Trinidad.

21. *Andropogon selloanus* (Hack.) Hack. Bull. Herb. Boiss. II. 4: 266. 1904.

*Andropogon leucostachyus* var. *selloanus* Hack. in DC. Monogr. Phan. 6: 420. 1889.

Similar to the preceding, stouter, the blades shorter, broader, and with a boat-shaped tip; racemes often 5 or 6.

<sup>1</sup> Contr. U. S. Nat. Herb. 12: 193. 1909.

Savannas and open ground, West Indies to Paraguay. The type specimen collected in Brazil by Sello.

Cuba (Pinar del Río and Isle of Pines), Trinidad (Pitch Lake and St. Joseph), and Tobago.

**22. *Andropogon nashianus* Hitchc. Contr. U. S. Nat. Herb. 12: 193. 1909.**

A slender erect perennial with narrow folded blades and terminal, densely silky racemes on long naked peduncles.

Sandy barrens, western Cuba and Antigua, the type specimen collected by Wright (no. 3899) in Pinar del Río, Cuba.

**23. *Andropogon urbanianus* Hitchc. Bot. Gaz. 54: 424. 1912.**

Taller than the preceding with long involute blades and grayish tawny racemes with dark spathes loosely scattered along the upper third of the culm, the pedicellate spikelets nearly as long as the fertile ones.

Dry hills, Hispaniola, the type specimen being *Fuertes* 1420.

Haiti (Camache, *Buch* 961, 1074) and Santo Domingo (Salinas, *Fuertes* 1420).

**24. *Andropogon virginicus* L. Sp. Pl. 1046. 1753.**

Densely tufted, with a mass of long leaves at the base, the compressed culms 1 to 1.5 meters high, with delicate feathery racemes scattered along the upper half or third.

Sterile hills and open woods, eastern United States to the West Indies and eastern Mexico. Originally described from Virginia.

Bermuda (*Brown & Britton* 225), Bahamas (New Providence), Cuba, and Jamaica.

**25. *Andropogon glomeratus* (Walt.) B. S. P. Prel. Cat. N. Y. 67. 1888.**

*Cinna glomerata* Walt. Fl. Carol. 59. 1788.

*Andropogon macrourus* Michx. Fl. Bor. Amer. 1: 56. 1803.

*Andropogon densus* Desv.; Hamilt. Prodr. Pl. Ind. Occ. 8. 1825.

*Anatherum macrourum* Griseb. Mem. Amer. Acad. n. ser. 8: 534. 1862.

*Andropogon tenuispathus* Nash, N. Amer. Fl. 17: 113. 1912.

A rather robust, densely tufted, erect perennial with compressed culms, crowded keeled lower sheaths, and a feathery club-shaped, usually dense inflorescence. Loose-paniced specimens may be distinguished from *A. virginicus* by the smaller spathes rarely overtopping the racemes.

Moist or dry open ground, southeastern United States through Mexico and the West Indies to northern South America. Originally described from South Carolina. The type of *Andropogon macrourus* is from Virginia or Carolina; of *Andropogon densus* from the "Antilles"; of *Andropogon tenuispathus* from Florida.

Bahamas (New Providence, Andros, and Eleuthera), Cuba, Jamaica, Haiti, Santo Domingo, Porto Rico, St. Kitts, Antigua, Guadeloupe, and Martinique.

### 13. CYMBOPOGON Spreng.

Racemes 2, on slender peduncles, subtended by a spathe-like sheath (the spathe narrow and often remote in *C. hirtus*), a staminate awnless spikelet borne at the summit of the peduncle in the fork of the two racemes, one or both of the racemes sometimes again forking at the lower joints with a staminate spikelet in the fork, one of the secondary racemes reduced to a single joint.

**1. *Cymbopogon hirtus* (L.) Nees; Baker, Fl. Maurit. 446. 1877, as synonym of *Andropogon hirtus* L. Sp. Pl. 1046. 1753.**



A slender ascending perennial with geniculate lower nodes, narrow scabrous blades, and few to several pairs of racemes about 5 cm. long, these densely short-villous, the twice-bent awns about 3 cm. long.

Waste places, introduced in a few localities in Mexico and the West Indies. Native of the Mediterranean region, whence originally described.

Cuba (Habana, León 2788; Manacas, León 5841, 5870), and Santo Domingo (Wright, Parry & Brummel 616).

The citronella grass (*Cymbopogon nardus* (L.) Rendle, *Andropogon nardus* L.) and the lemon grass (*Cymbopogon citratus* (DC.) Stapf) are cultivated and may possibly be found growing spontaneously. They are robust aromatic grasses with large compound inflorescences of small awnless or obscurely awned racemes, the first species with the glumes of the sessile spikelets flat on the back, the second with these glumes concave on the back. The essential oils of these and related species are used in perfumery.<sup>1</sup> Lemon grass is called "hierba de limón" in Cuba. In Porto Rico the fibrous rootstock of *C. nardus* is used as a toothbrush by the poorer people.

#### 14. ANATHERUM Beauv.

Racemes long, slender, solitary, on long filiform peduncles borne in whorls on an elongate axis, forming a large panicle; spikelets awnless, arranged as in *Andropogon*, the filiform rachis tardily disjoining.

##### 1. *Anatherum zizanioides* (L.).

KHUS-KHUS.

*Phalaris zizanioides* L. Mant. Pl. 183. 1771.

*Andropogon squarrosus* L. f. Suppl. Pl. 443. 1781.

*Andropogon muricatus* Retz. Obs. Bot. 3: 43. 1783.

*Anatherum muricatum* Beauv. Ess. Agrost. 128, 150. pl. 22. f. 10. 1812.

*Vetiveria arundinacea* Griseb. Fl. Brit. W. Ind. 559. 1864.

*Vetiveria muricata* Griseb. Fl. Brit. W. Ind. 560. 1864.

*Sorghum zizanioides* Kuntze, Rev. Gen. Pl. 2: 791. 1891.

*Andropogon zizanioides* Urban, Symb. Antill. 4: 79. 1903.

*Vetiveria zizanioides* Nash in Small, Fl. Southeast. U. S. 67. 1903.

A robust, densely tufted, erect, branching perennial with scabrous-margined blades, elongate-pyramidal panicles, and muricate spikelets.

Commonly cultivated in the West Indies as a hedge plant and for its aromatic roots. Sometimes escaped along roadsides. Originally described from India. *Andropogon squarrosus* and *Andropogon muricatus* are also described from India. *Vetiveria arundinacea* is described from the West Indies, Jamaica and Trinidad being mentioned, as "perhaps introduced from the East Indies." This is called "vetiver" <sup>2</sup> in Cuba. The roots are packed with articles of clothing to preserve them from moths. This is the grass that produces the aromatic roots called in Porto Rico "pacholi" <sup>3</sup> or "pachuli." The Indian name "khus-khus" is used in the English islands. The aromatic roots are sometimes woven into screens which, when wet, are used to perfume living quarters. Also sometimes called "cockroach grass" and "khas-khas."

<sup>1</sup> A detailed account of these grasses is given by Stapf in an article on The Oil-grasses of India and Ceylon (Kew Bull. Misc. Inf. 1906: 297-363. 1906).

<sup>2</sup> Maza and Rolg, Est. Exp. Agron. Bol. 22: 108. 1914.

<sup>3</sup> Cook, O. F., and Collins, G. N. Economic Plants of Porto Rico. Contr. U. S. Nat. Herb. 8: 208. 1903.

15. *HOLCUS* L.

Racemes reduced to 1 to 5 joints, borne on slender peduncles on the slender branches of a compound panicle; rachis slender, tardily disjoining; spikelets arranged as in *Andropogon*, the pedicellate spikelet usually staminate, the sessile spikelets awnless or with a deciduous awn.

Plants perennial, with creeping rhizomes-----1. *H. halepensis*.  
Plants annual -----2. *H. sorghum*.

1. *Holcus halepensis* L. Sp. Pl. 1047. 1753.

JOHNSON GRASS.

*Andropogon halepensis* Brot. Fl. Lusit. 1: 89. 1804.

*Sorghum halepensis* Pers. Syn. Pl. 1: 101. 1805.

A robust perennial with numerous stout rhizomes, flat scabrous-margined blades, and a large open panicle of plump spikelets with deciduous awns.

A weed in fields and waste places in the warmer parts of America; introduced from the Old World. Originally described from Syria. Found in all the large islands and probably in most of the smaller ones.

This species is described by Humboldt, Bonpland, and Kunth,<sup>1</sup> with Habana, Cuba, given as locality, under the name "*Andropogon avenaceus* Schrad." This is evidently a misprint for *A. arundinaceus* Willd., as described by Schrader.<sup>2</sup> In Cuba this is called "cañuela" and "hierba de Don Carlos."

2. *Holcus sorghum* L. Sp. Pl. 1047. 1753.

SORGHUM OR SORGO.

*Andropogon sorghum* Brot. Fl. Lusit. 1: 88. 1804.

*Sorghum vulgare* Pers. Syn. Pl. 1: 101. 1805.

*Sorghum dora* Griseb. Fl. Brit. W. Ind. 560. 1864.

A large broad-leaved annual, with a compact panicle of turgid persistent spikelets.

Occasionally cultivated in the West Indies and sometimes spontaneous in waste places or near fields. Widely cultivated in other parts of America and in the Old World, whence originally described. In the English islands it is often called "Guinea corn"; in Cuba it is called "millo."

2a. *Holcus sorghum sudanensis* (Piper) Hitchc. Proc. Biol. Soc. Washington 29: 128. 1916.

SUDAN GRASS.

*Andropogon sorghum sudanensis* Piper, Proc. Biol. Soc. Washington 28: 33. 1915.

Resembling no. 1, but less robust and having no rhizomes.

Coming into cultivation in the West Indies in recent years and sparingly escaped. Described from a cultivated specimen grown from seed from the Sudan.

Santo Domingo, Porto Rico, and St. Vincent.

16. *SORGHASTRUM* Nash.

Racemes arranged as in *Holcus*, the pedicellate spikelet wanting, the pedicel only present; rachis flexuous, readily disjoining.

Awn straight or slightly bent, not strongly spirally twisted at base, shorter than the spikelet or sometimes a little longer-----1. *S. parviflorum*.

Awn geniculate, strongly spirally twisted at base, about 3 times as long as the spikelet-----2. *S. stipoides*.

<sup>1</sup> Nov. Gen. & Sp. 1: 189. 1816.<sup>2</sup> Fl. Germ. 1: 237. 1806.

1. *Sorghastrum parviflorum* (Desv.).*Sorghum parviflorum* Desv.; Hamilt. Prodr. Pl. Ind. Occ. 12. 1825.*Andropogon setosus* Griseb. Cat. Pl. Cub. 235. 1866.*Andropogon agrostoide* Speg. Anal. Soc. Cienc. Argentina 16: 136. 1883.*Andropogon francavillanus* Fourn. Mex. Pl. 2: 56. 1886.*Sorghastrum francavillanum* Hitchc. Contr. U. S. Nat. Herb. 12: 195. 1909.*Sorghastrum setosum* Hitchc. Contr. U. S. Nat. Herb. 12: 195. 1909.*Sorghastrum agrostoides* Hitchc. Bot. Gaz. 51: 300. 1911.

A tall erect tufted glabrous perennial with long, flat or subinvolute blades and long lanceolate panicles with slender or subcapillary branchlets and peduncles and golden brown spikelets, the ultimate peduncles, the sterile pedicels, and the base of the spikelet clothed with white hairs; awn variable in length.

Grassy hillsides, southern Mexico and the West Indies to Argentina. Originally described from Hispaniola. The type of *Andropogon setosum* is from Cuba. Grisebach cites *Piptatherum setosum* A. Rich., "ex descr.," but Richard's description does not well apply to this species. It is probably wiser to consider *Andropogon setosum* as a new species rather than as a change of name and to take Grisebach's specimen, Wright 3897, as the type. *Andropogon agrostoide* was described from Argentina and *Andropogon francavillanus* from Mexico.

Central Cuba, Jamaica, Haiti, Santo Domingo, and Porto Rico (vicinity of San Juan).

2. *Sorghastrum stipoides* (H. B. K.) Nash, N. Amer. Fl. 17: 129. 1912.*Andropogon stipoides* H. B. K. Nov. Gen. & Sp. 1: 189. 1816.*Andropogon domingensis* Spreng.; Steud. Nom. Bot. ed. 2. 1: 91. 1840, as synonym of *A. stipoides*.

More slender than the preceding, the narrower blades convolute, the spikelets slightly larger, and the awns well developed.

Palm barrens, eastern Cuba (Guane, *Shafer* 10353) and Colombia to Brazil. Originally described from Colombia. This is the species referred by Hitchcock<sup>1</sup> to *S. francavillanum*.

17. *HETEROPOGON* Pers.

Racemes solitary, the lower part of the rachis not disjoining, bearing 2 to 5 pairs of staminate awnless spikelets, the upper part of the rachis disarticulating obliquely at the base of each joint, each forming a sharp callus below the long-awned sessile perfect spikelet, the pedicellate spikelet staminate.

1. *Heteropogon contortus* (L.) Beauv.; Roem. & Schult. Syst. Veg. 2: 836. 1817.*Andropogon contortus* L. Sp. Pl. 1045. 1753.*Andropogon secundus* Willd.; Nees, Agrost. Bras. 364. 1829.

A tall branching annual with compressed culms, keeled sheaths, scabrous blades, and solitary racemes of imbricate spikelets, the lower awnless, the upper with long brown bent awns. Lemon-scented when fresh.

Rocky slopes, warmer parts of both hemispheres. Originally described from India.

Cuba, Jamaica, Haiti, Santo Domingo, Antigua, and Guadeloupe.

<sup>1</sup> Contr. U. S. Nat. Herb. 12: 195. 1909.

18. RHAPHIS Lour.<sup>1</sup>

Inflorescence a few-flowered panicle, the racemes reduced to a single joint of the rachis with a sessile perfect spikelet and 2 pedicellate sterile spikelets (the latter sometimes obsolete) borne at the ends of slender naked peduncles, these disjoining obliquely near the summit, forming a sharp callus below the long-awned spikelets.

1. *Rhaphis pauciflora* (Chapm.) Nash in Small, Fl. Southeast. U. S. 67. 1903.  
*Andropogon wrightii* Munro; Wright in Sauv. Fl. Cub. 202. 1873, nom. nud.  
*Sorghum pauciflorum* Chapm. Bot. Gaz. 3: 20. 1878.  
*Chrysopogon pauciflorus* Benth.; Vasey, Grasses U. S. 20. 1883.

A slender branching annual with flat or folded ciliate blades and a few-flowered panicle with capillary branchlets, the brown spikelets raised on a hairy callus of nearly equal length, the twisted bent awns up to 15 cm. long.

Sandy pine barrens, Florida and eastern Cuba, the type locality of *S. pauciflorum* being Jacksonville, Florida, and of *A. wrightii* being Cuba.

## 19. THEMEDA Forsk.

Inflorescence a flabellate cluster of several racemes, each subtended by a leaflike spathe, the entire cluster (or panicle) subtended or partly inclosed by a larger spathe; racemes consisting of 2 approximate pairs of sessile awnless staminate or neuter spikelets and a single fertile awned spikelet with a pair of sterile pedicellate ones, the rachis disjoining above the pairs of sessile staminate spikelets and forming a pointed callus below the fertile one.

Sessile spikelets villous; glumes not strongly papillose-----1. *T. arguens*.  
 Sessile spikelets not villous; glumes strongly papillose, the papillæ bearing long stiff hairs-----2. *T. quadrivalvis*.

1. *Themeda arguens* (L.) Hack. in DC. Monogr. Phan. 6: 657. 1889.

CHRISTMAS GRASS.

*Stipa arguens* L. Sp. Pl. ed. 2. 117. 1762.

An ascending annual with compressed branching culms, flat scabrous blades, and V-shaped clusters of long-awned spikelets.

Introduced in Jamaica (Morant Bay and Troy); native of Asia. Originally described from India.

2. *Themeda quadrivalvis* (L.) Kuntze, Rev. Gen. Pl. 2: 794. 1891.

KANGAROO GRASS.

*Andropogon quadrivalvis* L. Syst. Veg. ed. 13. 758. 1774.

*Anthistiria ciliata* L. f. Suppl. 113. 1781.

*Themeda ciliata* Hack. in DC. Monogr. Phan. 6: 664. 1889.

Usually taller than the preceding with an elongate inflorescence of more numerous and smaller clusters of spikelets. Exceedingly variable in the size of the subtending spathes.

Introduced in Martinique and Barbados; native of the East Indies. Originally described from India.

## 20. ANTHEPHORA Schreb.

Spikelets in clusters of 4, the indurate first glumes united at base, forming a pitcher-shaped pseudo-involucre, the clusters subsessile and erect on a slender flexuous continuous axis.

<sup>1</sup> The name *Rhapis* L. f.; Ait. Hort. Kew. 3: 473. 1789, having a different derivation and pronunciation should not invalidate *Rhaphis* Lour. The latter name should replace *Chrysopogon* Trin. Fund. Agrost. 187. 1820.

**1. Anthephora hermaphrodita (L.) Kuntze, Rev. Gen. Pl. 2: 759. 1891.***Tripsacum hermaphroditum* L. Syst. Nat. ed. 10. 2: 1261. 1759.*Anthephora elegans* Schreb. Besch. Gräs. 2: 105. 1810.*Cenchrus laevigatus* Trin. Fund. Agrost. 172. 1820.*Anthephora villosa* Spreng. Neu. Entd. 3: 14. 1822.

A leafy ascending or decumbent branching annual with flat thin blades, the erect spikes 5 to 10 cm. long.

A common weed throughout the West Indies and other parts of tropical America. Originally described from Jamaica. *Anthephora elegans* was described from Jamaica. *Cenchrus laevigatus* is a change of name for *A. elegans*. *Anthephora villosa*, described from "India occidentali," is the pubescent form.

**21. NAZIA** Adans.

Spikelets in clusters of 2 (in our species), their flat faces contiguous, their second glumes outermost, strongly convex, covered with stout uncinate spines.

**1. Nazia aliena (Spreng.) Scribn. U. S. Dept. Agr. Div. Agrost. Bull. 17: 28. 1899.***Lappago aliena* Spreng. Neu. Entd. 3: 15. 1822.*Tragus berteronianus* Schult. Mant. 2: 205. 1824.

A low spreading annual with flat ciliate blades and spikes of small crowded burs.

Open arid ground, southwestern United States and the West Indies to Brazil, whence originally described. The type of *Tragus berteronianus* was from Santo Domingo.

Cuba, Jamaica, Haiti, Santo Domingo, Porto Rico, St. Thomas, St. Croix, St. Kitts, and Antigua.

**22. LEPTOTHRIUM** Kunth.

Spikelets solitary; glumes much exceeding the single minute floret, the tips diverging, the first subulate, not at all clasping, the second laterally compressed above; pedicel falling with the spikelet, forming a pointed callus.

**1. Leptothrium rigidum** Kunth, Rév. Gram. 1: 156. 1829.*Zoisia rigida* Willd.; Kunth, Rév. Gram. 1: 156. 1829, as synonym of *Leptothrium rigidum*.

A densely tufted perennial 30 to 40 cm. tall, with slender rigid short-jointed culms branching toward the summit, short stiff divergent blades, and partially included spikes of narrow spikelets along a slender axis, at first erect, becoming divergent or reflexed.

In sand along the seacoast, Palisadoes, Jamaica, and Santa Marta, Colombia. Originally described from "America calidior."

**23. ARUNDINELLA** Raddi.

Spikelets short-pedicellate in large panicles; glumes acuminate, the tips widely spreading, the second longer than the first and the sterile lemma; fertile lemma minute, bearded on the callus, bearing a long slender awn from the apex.

Awn tightly twisted below, the column shorter than the second glume.

**1. A. confinis.**

Awn not tightly twisted below, the part below the bend exceeding the glume.

Blades broad and flat, 1 to 2 cm. wide; plants robust, 1.5 to 2 meters tall; sheaths appressed-villous-----**2. A. deppeana.**

Blades narrow and more or less folded or convolute; plants slender, mostly less than 1 meter tall; sheaths usually smooth---**3. A. berteroniana.**

1. *Arundinella confinis* (Schult.).

*Piptatherum confine* Schult. Mant. 2: 184. 1824.

*Arundinella martinicensis* Trin. Gram. Pan. 62. 1826.

*Agrostis berteriana* Spreng.; Steud. Nom. Bot. ed. 2. 1: 39, 143. 1840.

A tufted erect perennial with strong slender simple culms up to 2.5 meters tall, flat blades, scabrous at least on the upper surface, and rather densely flowered oblong panicles 20 to 40 cm. long.

Grassy slopes, West Indies and southern Mexico to Paraguay. Described from Martinique, *Sieber* 265 being the type of *Piptatherum confine* and *Sieber* 262 being the type of *Arundinella martinicensis*. The Cuban name is "cañuela de sabana."

Cuba, Jamaica, Haiti, Santo Domingo, Porto Rico, Guadeloupe, Dominica, Martinique, St. Vincent, Trinidad, and Tobago.

2. *Arundinella deppeana* Nees in Steud. Syn. Pl. Glum. 1: 115. 1854.

Similar to the preceding, the panicle branches on the average longer and laxer, the awns longer.

Moist places, Mexico to Brazil; also in central and western Cuba. Originally described from Mexico.

3. *Arundinella berteroniana* (Schult.).

*Trichochloa berteroniana* Schult. Mant. 2: 209. 1824.

*Thysanachne peruviana* Presl, Rel. Haenk. 1: 253. 1830.

*Muhlenbergia berteroniana* Kunth, Enum. Pl. 1: 202. 1833.

*Podosacum virens* Balb.; Kunth, loc. cit. as synonym of *Muhlenbergia berteroniana*.

*Arundinella peruviana* Steud. Syn. Pl. Glum. 1: 115. 1854.

*Arundinella cubensis* Griseb. Mem. Amer. Acad. n. ser. 8: 533. 1862.

Smaller, more slender than nos. 1 and 2, with narrower, folded or involute blades and more open fewer flowered panicles with slightly larger spikelets.

Moist places, Mexico to Brazil; also Hispaniola and central and eastern Cuba. Originally described from Santo Domingo. *Thysanachne peruviana* was described from Peru. The type specimen of *Arundinella cubensis* is *Wright* 1552.

24. *TRISCENIA* Griseb.

Spikelets short-pedicellate, narrow, awnless, the fruit inclosed in the infolding second glume and sterile lemma.

1. *Triscenia ovina* Griseb. Mem. Amer. Acad. n. ser. 8: 534. 1862.

A tufted perennial with filiform culms and blades, compressed, subindurate sheaths crowded at the base, and attenuate few-flowered panicles.

Only known from two collections from eastern Cuba, the type, *Wright* 756, and *Shafer* 3668 from Piedra Gorda to Rio Seboruco.

25. *ACHLAENA* Griseb.

Spikelets with the rachilla produced into a pointed callus; first glume reduced to a long slender awn, the second glume awned from the summit; sterile lemma awnless, infolding the membranaceous fertile lemma and palea.

From Grisebach's description of the genus it is evident that he failed to note the palea, mistaking the sterile lemma for the fertile lemma (*flos fertilis*) and the fertile lemma for the palea, stating as he does that the palea is 1-nerved. Benthams & Hooker<sup>1</sup> and Hackel<sup>2</sup> follow Grisebach in this disposition of the

<sup>1</sup> Gen. Pl. 3: 1117. 1883.

<sup>2</sup> In Engl. & Prantl, Pflanzenfam. 2<sup>2</sup>: 41. 1887.

genus, probably lacking material for verification of Grisebach's description. Hackel places the genus in Oryzeae, and elsewhere describes a specimen of *A. piptostachya* as *Arthropogon stipitatus*, giving so clear and detailed a description as to leave no doubt of its identity. Grisebach states that there is but 1 stamen; we find 3, as did Hackel in the plant he described under *Arthropogon*. *Achlaena* is closely allied to the South American *Arthropogon* or is possibly congeneric.

1. *Achlaena piptostachya* Griseb. Cat. Pl. Cub. 229. 1866.

*Arthropogon stipitatus* Hack. Sitzungsab. Akad. Wiss. Math. Naturw. (Wien) 89: 125. 1884.

A tufted perennial with stiffly erect culms 0.5 to 1 meter tall, elongate linear firm blades mostly clustered toward the base, and a long-exserted panicle, the fascicled branches stiffly spreading or reflexed at maturity, the long-awned spikelets borne toward the ends.

Open ground, Cuba and Jamaica. Originally described from Cuba, the type being Wright 3487. The type of *Arthropogon stipitatus* was collected in Cuba by Sagra.

Cuba (Province of Pinar del Río and Isle of Pines) and Jamaica (Dolphin Head, Britton & Hollick 2194).

## 26. LEPTOCORYPHIUM Nees.

Spikelets in narrow panicles; first glume wanting; sterile lemma empty, this and the second glume hairy; fertile lemma and palea brown with a white hyaline, somewhat lacerate or ciliate summit, open at maturity.

1. *Leptocoryphium lanatum* (H. B. K.) Nees, Agrost. Bras. 84. 1829.

*Paspalum lanatum* H. B. K. Nov. Gen. & Sp. 1: 94. pl. 29. 1816.

*Milium lanatum* Roem. & Schult. Syst. Veg. 2: 322. 1817.

*Panicum fusciflorum* Steud. Syn. Pl. Glum. 1: 93. 1854.

*Anthraenantia lanata* Benth. Journ. Linn. Soc. Bot. 19: 39. 1881.

A slender erect unbranched tufted perennial up to 1 meter tall, with long narrow often involute blades, and loose many-flowered oblong panicles with capillary branchlets and silky-pilose spikelets, the hairs at first appressed, at maturity spreading.

Dry hills and pine barrens, southern Mexico and the West Indies to northern South America. Originally described from Mexico. The type locality of *Panicum fusciflorum* is French Guiana.

Cuba, Porto Rico (Mayaguez),<sup>1</sup> and Trinidad.

## 27. VALOTA Adans.

Spikelets in pairs, short-pedicellate in 2 rows along one side of a narrow rachis, the slender racemes aggregated in a narrow or flabellate panicle; spikelets lanceolate, clothed with long silky hairs; first glume minute; fruit acuminate, brown with broad white hyaline margins.

Racemes few, usually about 3; blades short, mostly not over 3 cm. long; plants 20 to 40 cm. tall.-----1. *V. eggersii*.

Racemes numerous; blades elongate; plants usually more than 50 cm. tall.

Lower panicle branches in a fascicle on one side of the axis; spikelets densely clothed with tawny or brown silky hairs much exceeding the spikelet-----2. *V. insularis*.

<sup>1</sup> Names of places in Porto Rico are here spelled without diereses and accents, following the usage of the United States Postal Guide.

Lower panicle branches in a whorl; spikelets sparsely villous, the hairs shorter than the spikelet -----3. *V. laxa*.

1. *Valota eggersii* (Hack.).

*Panicum eggersii* Hack. Oesterr. Bot. Zeitschr. 51: 292. 1901.

A slender branching perennial, decumbent at base, with small flat puberulent blades and panicles of 2 or 3 erect racemes 2 to 5 cm. long.

Only known from the island of St. Thomas, the type specimen being *Eggers* 295.

2. *Valota insularis* (L.) Chase, Proc. Biol. Soc. Washington 19: 188. 1906.

*Andropogon insularis* L. Syst. Nat. ed. 10. 2: 1304. 1759.

*Panicum lanatum* Rottb. Act. Lit. Univ. Hafn. 1: 269. 1778.

*Milium villosum* Swartz, Prodr. Veg. Ind. Occ. 24. 1788.

*Panicum leucophaeum* H. B. K. Nov. Gen. & Sp. 1: 97. 1816.

*Panicum insulare* Meyer, Prim. Fl. Esseq. 60. 1818.

*Trichachne insularis* Nees, Agrost. Bras. 86. 1829.

*Saccharum polystachyum* Sieb.; Kunth, Enum. Pl. 1: 124. 1823.

*Panicum saccharoides* A. Rich. in Sagra, Hist. Cuba 11: 306. 1850.

*Panicum falsum* Steud. Syn. Pl. Glum. 1: 67. 1854.

*Panicum dachaissingii* Steud. Syn. Pl. Glum. 1: 93. 1854.

*Tricholaena insularis* Griseb. Fl. Brit. W. Ind. 557. 1864.

*Digitaria leucophaea* Stapf in Thiseit. Dyer, Fl. Cap. 7: 382. 1898.

*Syntherisma insularis* Millsp. & Chase, Field Mus. Bot. 1: 473. 1902.

*Digitaria insularis* Mez; Ekman, Ark. för Bot. 13: 22. 1913.

A rather coarse tufted weedy perennial, with sparsely hirsute sheaths, flat, usually scabrous blades, and silky panicles tawny at maturity.

Open ground and waste places in the Tropics and Subtropics of America at low altitudes. The type locality of *Andropogon insularis*, of *Panicum lanatum*, and of *Milium villosum* is Jamaica; of *Saccharum polystachyum*, Martinique; of *Panicum saccharoides* and *P. falsum*, Cuba; of *P. dachaissingii*, the island of Guadeloupe. *Panicum leucophaeum* was described from Venezuela and Colombia. This species is often called "sour-grass," a name which is occasionally applied to other large unpalatable grasses such as species of *Paspalum*. In Cuba it is one of the grasses called "barba de indio," and "rabo de zorra."

To be found in probably all of the West Indian islands.

3. *Valota laxa* (Reichenb.).

*Reimaria laxa* Reichenb.; Spreng. Tent. Suppl. Syst. Veg. 2. 1828.

Taller than the preceding, decumbent at base, the sheaths tuberculate-hispid, the panicle larger, the long slender branches widely spreading at maturity. The stiff hairs of the sheaths break off in handling and penetrate the skin.

Open moist ground, southern West Indies to Paraguay. Originally described from Surinam [Dutch Guiana].

Grenada, Trinidad, and Tobago.

## 28. SYNTERISMA Walt.

Spikelets in 2's or 3's, short-pedicellate in two rows along one side of a narrow rachis, the slender racemes digitate or subdigitate; spikelets lanceolate or elliptic; first glume minute or obsolete; fruit acute, the hyaline margins of the lemma narrow.

Rachis narrowly winged on the margins, appearing flat or flattened-triangular.

Pedicels with a ring of stiff hairs at the summit; spikelets with stripes of dense gland-tipped hairs-----7. *S. argyrostachya*.

Pedicels naked.



Second glume as long as the dark fruit; spikelets pubescent.

3. *S. ischaemum*.

Second glume shorter than the fruit; spikelets minutely pubescent or subglabrous.

First glume small but distinct; spikelets about 3 mm. long.

2. *S. sanguinalis*.

First glume obsolete; spikelets less than 2.5 mm. long.

Plants prostrate, forming mats; blades pilose; fruit pale.

5. *S. serotina*.

Plants erect or ascending; blades glabrous or nearly so; fruit black ----- 6. *S. longiflora*.

Rachis not winged.

Second glume and sterile lemma equal; fruit pale; spikelets glabrous or nearly so ----- 4. *S. simpsoni*.

Second glume shorter than the sterile lemma and fruit.

Rachis sparsely beset with scattered spreading long hairs; fruit pale.

1. *S. digitata*.

Rachis with no long hairs; fruit brown.

Spikelets glabrous ----- 8. *S. curvinervis*.

Spikelets with stripes of dense silky hairs.

Spikelets 2.5 to 3 mm. long, with copious long silky hairs extending beyond the apex of the spikelet.

10. *S. leucoma*.

Spikelets 1.5 to 2 mm. long.

Hairs on the spikelet extending beyond the apex as a stiff brushlike tip ----- 12. *S. argillacea*.

Hairs on spikelet not brushlike at tip and not extending beyond the spikelet.

Blades villous ----- 11. *S. villosa*.

Blades glabrous or nearly so ----- 9. *S. panicea*.

1. *Syntherisma digitata* (Swartz) Hitchc. Contr. U. S. Nat. Herb. 12: 142. 1908.

*Milium digitatum* Swartz, Prodr. Veg. Ind. Occ. 24. 1788.

*Digitaria horizontalis* Willd. Enum. Hort. Berol. 92. 1809.

*Axonopus digitatus* Beauv. Ess. Agrost. 12, 154. 1812.

*Digitaria setigera* Roth; Roem. & Schult. Syst. Veg. 2: 474. 1817.

*Panicum horizontale* Meyer, Prim. Fl. Esseq. 54. 1818.

*Digitaria setosa* Desv.; Hamilt. Prodr. Pl. Ind. Occ. 6. 1825.

*Digitaria jamaicensis* Spreng. Syst. Veg. 1: 272. 1825.

*Paspalum digitatum* Kunth, Rév. Gram. 1: 24. 1829.

*Panicum hamiltonii* Kunth, Enum. Pl. 1: 84. 1833.

*Syntherisma setosa* Nash, Bull. Torrey Club 25: 300. 1898.

A decumbent branching stoloniferous weedy annual with pilose sheaths and pubescent, often velvety, flat blades, and 5 to 15 very slender lax racemes up to 8 cm. long, subdigitate or in fascicles along a slender axis.

A common weed in fields, open ground, and waste places, tropical regions of both hemispheres. Originally described from Jamaica; the type of *Digitaria jamaicensis* also from Jamaica. *Digitaria setosa* and *Panicum hamiltonii* were described from the Antilles; *Digitaria setigera* from India; *Digitaria horizontalis* from Santo Domingo. To be found in probably all of the West Indian islands. This is sometimes called in Cuba "pata de gallina fina" (fine henfoot).

2. *Syntherisma sanguinalis* (L.) Dulac, Fl. Haut. Pyr. 77. 1867. CRABGRASS.

*Panicum sanguinale* L. Sp. Pl. 57. 1753.

*Digitaria sanguinalis* Scop. Fl. Carn. ed. 2. 1: 52. 1772.

*Digitaria marginata* Link, Enum. Pl. 1: 102. 1821.

*Digitaria fimbriata* Link, Hort. Berol. 1: 226. 1827.

*Syntherisma fimbriata* Nash, Bull. Torrey Club 25: 302. 1898.

Similar to the preceding, commonly larger and coarser, the blades less pubescent, the racemes on the average fewer, the spikelets slightly larger and more closely arranged on the broader rachis. Depauperate specimens may be distinguished by the fewer racemes, larger spikelets, and rachis without scattered long hairs.

A common weed in cultivated soil and waste places throughout the temperate and tropical regions of both hemispheres. To be found on all the West Indian islands. An excellent fodder grass. Originally described from America and southern Europe. *Digitaria marginata* and *Digitaria fimbriata* are described from Brazil. In Cuba this is one of the species to which the name "pata de gallina" is applied.

3. *Syntherisma ischaemum* (Schreb.) Nash, N. Amer. Fl. 17: 151. 1912.

*Panicum ischaemum* Schreb.; Schweigger, Spec. Fl. Erlang. 16. 1804.

A spreading annual weed, resembling crabgrass, but with glabrous, darker green foliage.

Common in eastern United States; introduced from Europe, whence originally described. Collected in St. Croix (*Benzon*).

4. *Syntherisma simpsoni* (Vasey) Nash, Bull. Torrey Club 25: 297. 1898.

*Panicum sanguinale* var. *simpsoni* Vasey, Contr. U. S. Nat. Herb. 3: 25. 1892.

*Panicum simpsoni* Beal, Grasses N. Amer. 2: 109. 1896.

More widely creeping than no. 2, with more slender, pale green racemes with a narrower rachis and finely nerved glabrous or nearly glabrous spikelets.

Sandy soil, Florida and Cuba (Isle of Pines, *Curtiss* 522). Originally described from Manatee, Florida.

5. *Syntherisma serotina* Walt. Fl. Carol. 76. 1788.

*Digitaria serotina* Michx. Fl. Bor. Amer. 1: 46. 1803.

A low creeping pilose annual, forming a dense carpet, the delicate ascending flowering stems 20 to 30 cm. high, with 3 to 5 more or less arcuate racemes.

Sandy soil, Coastal Plain of the United States from Delaware to Mississippi; also in western Cuba. Originally described from South Carolina.

6. *Syntherisma longiflora* (Retz.) Skeels, U. S. Dept. Agr. Bur. Pl. Ind. Bull. 261: 30. 1912.

*Paspalum longiflorum* Retz. Obs. Bot. 4: 15. 1786.

*Panicum longiflorum* Gmel. Syst. Nat. 2: 158. 1791.

*Digitaria longiflora* Pers. Syn. Pl. 1: 85. 1805.

A slender tufted erect or ascending annual, leafy below, with flat glabrous blades and 2 to several very slender, usually arcuate racemes of minute pale spikelets obscurely silky in the internerves.

Fields and open grassy ground, tropical regions of the Old World; introduced into the West Indies. Originally described from India. The West Indian species appears to be the same as that described under *Digitaria longiflora* by Merrill.<sup>1</sup>

Bermuda, Jamaica, Porto Rico, and Trinidad.

7. *Syntherisma argyrostachya* (Steud.).

*Panicum argyrostachyum* Steud. Syn. Pl. Glum. 1: 40. 1854.

Similar to *S. longiflora*, the blades with a few long hairs at base, the spikelets larger, with stripes of dense silky hairs; pedicels with a ring of stiff hairs at the summit.

<sup>1</sup> Philippine Journ. Sci. C. Bot. Suppl. 1: 347. 1906.

A weed in cultivated soil, introduced in Jamaica (Cinchona). Originally described from Java.

8. *Syntherisma curvinervis* (Hack.).

*Panicum curvinerve* Hack. Oesterr. Bot. Zeitschr. 51: 335. 1901.

A very slender erect annual, sparingly branching below, with narrow flat blades and about 3 slender racemes with minute glabrous strongly nerved spikelets.

Sandy soil, Pinar del Río, Cuba, whence described, the type collection, Wright 1544, mixed with two other species.

9. *Syntherisma panicea* (Swartz) Nash, N. Amer. Fl. 17: 152. 1912.

*Milium paniceum* Swartz, Prodr. Veg. Ind. Occ. 24. 1788.

*Agrostis jamaicensis* Poir. in Lam. Encycl. Suppl. 1: 258. 1810.

*Axonopus paniceus* Beauv. Ess. Agrost. 12, 154. 1812.

An erect slender glabrous or nearly glabrous perennial with simple culms, narrow blades, often involute and more or less curled in drying, and one to several slender racemes up to 12 cm. long.

Open grassy places, subtropical Florida and the West Indies. Originally described from Jamaica. There is a slight uncertainty in the application of the name *Milium paniceum*. The original description applies to the species described above. The amplified description<sup>1</sup> also applies with the exception of "Rachis 3-quetrae, margine membranaceae." The rachis is only minutely margined. Because of this phrase Nash<sup>2</sup> has applied the name to *S. longiflora* which has a well-marked rachis margin. In many respects Swartz's later description does not apply to *S. longiflora*. There is no specimen of *Milium paniceum* in the Swartz Herbarium, but there are three specimens sent by Swartz to other herbaria, one at Munich, one at Madrid, and one in the De Candolle Herbarium. All these specimens are *Syntherisma panicea* as here understood. The habitat given by Swartz is "in aridis sabulosis Jamaicae australis", while *S. longiflora* is found in the wet mountain region. The latter species is introduced, probably at a recent date (as it was not known to Grisebach), while the other appears to be indigenous. This species resembles *S. filiformis* of the United States under which name Griesbach<sup>3</sup> and Nash<sup>4</sup> include it, but differs in being apparently perennial and in having longer, more numerous racemes, longer folded or subinvolute blades, and slightly larger spikelets with longer pubescence.

Bahamas (New Providence and Andros), Cuba, Jamaica, Haiti, Santo Domingo, and northern Porto Rico.

10. *Syntherisma leucocoma* Nash, Bull. Torrey Club 25: 295. 1898.

Similar to the preceding, on the average taller and stouter, the racemes longer, the spikelets larger and with dense soft silky hairs slightly exceeding the spikelet.

Sandy woods and barrens, Florida and central and western Cuba. Described from Florida.

11. *Syntherisma villosa* Walt. Fl. Carol. 77. 1788.

?*Panicum domingense* Zuccagni in Roemer, Coll. Bot. 123. 1809.

A tall slender annual or perennial, resembling the preceding but with hirsute foliage, the racemes at maturity more spreading, the pubescence of the spikelets short and crisp.

<sup>1</sup> Fl. Ind. Occ. 1: 179. 1797.

<sup>2</sup> N. Amer. Fl. 17: 152. 1912.

<sup>3</sup> Fl. Brit. W. Ind. 543. 1864.

<sup>4</sup> Fl. N. Amer. 17: 150. 1912.

Sandy woods, southeastern United States and Cuba (La Grifa la Catolina, Wright 3884). Originally described from South Carolina.

12. *Syntherisma argillacea* sp. nov.

A caespitose perennial; culms ascending, slender, branching from the lower nodes, glabrous, 15 to 60 cm. tall, the nodes sparsely pilose; leaves mostly clustered toward the base, olivaceous, the sheaths and upper surface of the blades scabrous, usually rather densely papillose-pilose (sometimes scabrous only), the lower surface of the blades sparsely so; ligule membranaceous, about 0.5 mm. long; blades flat, ascending, 3 to 8 cm. long, 3 to 4 mm. wide, tapering from base to apex; panicle long-exserted, of 1 to 6 (usually 3 or 4) ascending racemes, the common axis 0.5 to 4 cm. long, scabrous on the angles, short-villous in the axils; racemes 1 to 8 cm. long, the slender wingless zigzag rachis scabrous on the angles; spikelets in pairs (rarely in 3's) on slender scabrous pedicels, 2 mm. long (or the hairs slightly exceeding 2 mm.), 0.8 mm. wide; first glume an obscure hyaline rudiment or wanting; second glume about three-fourths the length of the sterile lemma, the margins and internerves of both (except the middle pair of the lemma) densely clothed with thick glistening hairs, some as much as 1 mm. long, exceeding the spikelet as a brushlike tip; fruit dark brown, 1.7 to 1.8 mm. long, 0.7 mm. wide, fusiform, the hyaline lemma margins meeting over the upper half of the palea.

Type in the U. S. National Herbarium, no. 732423, collected on shaded rocks along a trail, Monte Alegriillo, near Maricao, Porto Rico, at an altitude of 800 meters, October 20, 1913, by Agnes Chase (no. 6221).

Probably most nearly related to *Syntherisma leucocoma* and *S. panicea*, from both of which it differs in the short, flat blades. The long hairs of the smaller spikelets are thicker and stiffer than in the spikelets of *S. leucocoma* and longer than in those of *S. panicea*.

Clay soil, Cuba (Herradura, Tracy 9104; near Minas, León 4785; Guanabacoa, León 4715; Manacas, León 5843), and Porto Rico (Maricao, Chase 6221; Monte Mesa, Chase 6271, 6277).

29. *THRASYA* H. B. K.

Inflorescence a single terminal spikelike raceme, the rachis with membranaceous wings, partially embracing the row of spikelets; spikelets apparently sessile and solitary in a single row, but actually in pairs, the spikelets of each pair back to back, the pedicel of the primary spikelet adnate to the midnerve of the rachis; first glume minute, often hyaline; second glume shorter than the spikelet; sterile lemma subindurate, thinner down the middle, at maturity splitting to the base, the margins of the split rolling inward, the sterile palea nearly as long as its lemma, the margins firm, inclosing a staminate flower or empty; fruit cartilaginous-indurate, commonly with stiff hairs at the summit.

Rachis ciliate with stiff hairs; blades pilose, at least on the margin.

1. *T. paspaloides*.

Rachis not ciliate; blades glabrous or nearly so-----2. *T. robusta*.

1. *Thrasya paspaloides* H. B. K. Nov. Gen. & Sp. 1: 121. pl. 39. 1816.

*Panicum thrasya* Trin. Mém. Acad. St. Pétersb. VI. Sci. Nat. 3<sup>e</sup>: 228. 1834.

A slender, erect, densely tufted perennial, 25 to 50 cm. tall, at length branching from the upper nodes, with narrow flat pilose blades and long-exserted arcuate racemes 3 to 5 cm. long, the spikelets stiffly ciliate. In referring the

Trinidad specimens to *T. paspaloides*, the type of which we have not seen, allowance is made for evident errors in the description and plate.<sup>1</sup> The only character described not readily to be explained is the long nerveless second glume. In our specimens the second glume is shorter than the spikelet, the midnerve apparent at the base only, the lateral nerves strong, the thin glume readily splitting between them. The plant as a whole, however, well agrees with the original description.

Wet sandy savannas, Trinidad (Aripo Savanna, *Hitchcock* 10081; Piarco Savanna, *Hitchcock* 10335), and Venezuela. Originally described from an island in the Orinoco. This is the species described by Griesbach<sup>2</sup> as *T. hirsuta*.

## 2. *Thrasya robusta* sp. nov.

A caespitose perennial; culms erect, rather stout, branching, 1 to 1.5 meters tall, appressed-pubescent at and below the nodes; sheaths scaberulous, ciliate, villous at the throat and pubescent on the collar, the lower crowded, compressed-keeled, sometimes strigose; ligule a short firm membrane about 1 mm. long; blades flat or folded, firm, ciliate, glabrous but roughish beneath or sometimes sparsely puberulent, crisply puberulent above, 15 to 30 cm. long, 4 to 15 mm. wide, the upper smaller, those of the floral branches reduced to a short point; racemes 1 (or occasionally 2), terminating the main culms and the branches from the upper nodes, arcuate, 8 to 14 cm. long, the peduncles slender, long-exserted, or the lower ones partly inclosed by the subtending sheath, villous at the summit; the rachis 2 to 3 mm. wide, glabrous, not ciliate, the margins curved upward embracing the base of the spikelets; spikelets oblong-ellipsoid, 3.2 mm. long, 1.2 mm. wide, about as thick, in a single row, the alternate ones facing in opposite directions, those of a pair being thus back to back; first glume minute, hyaline, nerveless (an occasional nerved well-developed glume found); second glume slightly shorter than the sterile floret, 5-nerved, rather crisply villous; sterile lemma villous, subindurate, early splitting down the center, the edges inrolled, subtending a staminate flower, the palea firm on the margins, as long as its lemma; fruit plano-convex, 2.8 mm. long, 1 mm. wide, elliptical, glabrous, minutely papillose, chartaceous, not very indurate.

Type in the U. S. National Herbarium, no. 865559, collected in a savanna at St. Joseph, Trinidad, December 23, 1912, by A. S. Hitchcock (no. 10187).

The only other specimen seen by us was collected in the wet sandy Piarco Savanna, south of Arouca, Trinidad (*Hitchcock* 10352).

## 30. MESOSETUM Steud.

Inflorescence a single erect terminal spikelike raceme, the spikelets subsessile, solitary, in two rows on one side of a slender rachis, the back of the fruit turned from the rachis, ventricose on the side toward the rachis and fitting into its concavities, the back of the spikelet flat or nearly so; glumes and sterile lemma usually bearing stiff hairs on the strong lateral nerves, the midnerve of the sterile lemma faint or suppressed; sterile palea wanting; fruit ventricose on the palea side.

Racemes 6 to 12 cm. long; second glume (outer one) three-fourths as long as the spikelet -----1. *M. loliiforme*.  
 Racemes 3 to 4 cm. long; second glume exceeding the spikelet----2. *M. wrightii*.

<sup>1</sup> See Chase, Proc. Biol. Soc. Washington 24: 112-114. 1911.

<sup>2</sup> Fl. Brit. W. Ind. 540. 1864.

1. *Mesosetum loliiforme* (Hochst.) Chase, Bot. Gaz. 51: 302. 1911.*Panicum loliiforme* Hochst.; Steud. Syn. Pl. Glum. 1: 56. 1854.

A slender tufted erect or ascending perennial with yellowish green hirsute foliage, the blades flat, narrow, often elongate, the pale flattened spike 6 to 12 cm. long.

Sandy pine woods, Cuba (Province of Pinar del Río and Isle of Pines) and northern South America. Originally described from Surinam.

2. *Mesosetum wrightii* Hitchc. Contr. U. S. Nat. Herb. 12: 211. 1909.

Perennial, the slender culm ascending from a creeping base, the short flat blades sparsely hirsute, the spikes 3 to 4 cm. long.

Sandy pine woods, Cuba (Dayanguas, Pinar del Río, Wright 3859, the type; Placetas del Sur, Santa Clara, León 6430).

31. *ERIOCHLOA* H. B. K.

Inflorescence of few to many racemes along a common axis; spikelets subsessile, solitary, the back of the fruit turned from the slender rachis; internode of the rachilla between the first and second glumes thickened, forming a ringlike base to the spikelet, the first glume usually reduced to an obscure sheath adnate to the ring; fruit minutely papillose-rugose, mucronate-pointed or with a delicate, often deciduous awn.

Blades filiform ----- 1. *E. filifolia*.

Blades flat, 2 to 15 mm. wide.

Spikelets acute; first glume present ----- 4. *E. subglabra*.

Spikelets long-acuminate; first glume obsolete.

Fruit tipped with a slender awn 1 mm. long; spikelets 4 to 5 mm. long ----- 3. *E. punctata*.

Fruit merely apiculate; spikelets 3 mm. long ----- 2. *E. ramosa*.

1. *Eriochloa filifolia* Hitchc. Contr. U. S. Nat. Herb. 12: 207. 1909.

A low tufted perennial with filiform culms and blades and small panicles of 2 or 3 short racemes of acuminate silky spikelets.

Sterile hills, Cuba, the type collected by Hitchcock on the Jata Hills, the only locality known for the species.

2. *Eriochloa ramosa* (Retz.) Kuntze, Rev. Gen. Pl. 2: 775. 1891.*Milium ramosum* Retz. Obs. Bot. 6: 22. 1791.*Eriochloa annulata* Kunth, Rév. Gram. 1: 30. 1829.

A slender ascending glabrous annual with sparingly branching culms, linear blades 2 to 5 mm. wide, and pale panicles of few to several erect or ascending racemes; spikelets silky.

Introduced in Cuba (Zaza, León 852). Originally described from India.

3. *Eriochloa punctata* (L.) Desv.; Hamilt. Prodr. Pl. Ind. Occ. 5. 1825.*Milium punctatum* L. Syst. Nat. ed. 10. 2: 872. 1759.*Oedipachne punctata* Link, Hort. Berol. 1: 51. 1827.*Helopus punctatus* Nees, Agrost. Bras. 16. 1829.*Monachne punctata* Nash, Bull. Torrey Club 30: 374. 1903.

Larger than the preceding, usually 1 meter or more tall; blades up to 15 mm. wide, the panicles with several to many ascending branches.

Swamps and ditches, southern United States through the West Indies and eastern Mexico to Brazil. Originally described from Jamaica.

Cuba, Jamaica, Santo Domingo, Porto Rico, St. Thomas, St. Croix, Tortola, Antigua, Montserrat, Guadeloupe, Dominica, Martinique, St. Vincent, Grenada, Barbados, Trinidad, and Tobago.

4. *Eriochloa subglabra* (Nash) Hitchc. Contr. U. S. Nat. Herb. 12: 208. 1909.

*Monachne subglabra* Nash, Bull. Torrey Club 30: 374. 1903.

*Eriochloa punctata* var. *subglabra* Urban, Symb. Antill. 4: 85. 1903.

A stoloniferous perennial with erect flowering culms 1 to 2 meters tall, bearded nodes, flat spreading blades, and terminal panicles of several to many loosely ascending or spreading branches, the spikelets usually in pairs.

Moist ground, swamps, and ditches, West Indies and Brazil. Originally described from Porto Rico, the type being *Heller* 380, collected at Martin Peña. In Porto Rico this species is confused with Pará grass, which it resembles in habit, and the name "malojilla" is applied to both. The two species are not infrequently found growing together.

Jamaica (Savanna-la-Mar, *Hitchcock* 9859), Porto Rico, Trinidad, and Brazil.

### 32. BRACHIARIA (Trin.) Griseb.

Inflorescence of few to several rather thick racemes; spikelets solitary, sessile, the back of the fruit turned from the rachis; first glume well developed.

1. *Brachiaria platyphylla* (Griseb.) Nash in Small, Fl. Southeast. U. S. 81. 1903.

*Paspalum platyphyllum* Griseb. Cat. Pl. Cub. 230. 1866.

Glabrous; culms ascending from a creeping base, rather freely branching; blades flat, 5 to 10 cm. long, about 1 cm. wide; inflorescence included at base, of 1 to 4 rather distant finally spreading racemes with a flat rachis and sessile ovoid spikelets appearing to be in a single row.

Sandy soil, Province of Pinar del Río, Cuba, whence originally described. In the Catalogue of the Grasses of Cuba<sup>1</sup> this species is referred to *B. plantaginea*. Subsequent collections of mature specimens show the Cuba species to be distinct from *B. plantaginea* of the continent.

BRACHIARIA ERUCAEFORMIS (J. E. Smith) Griseb. in Ledeb. Fl. Ross. 4: 469. 1833. *Panicum erucaciforme* J. E. Smith in Sibth. Fl. Graec. Prodr. 1: 40. 1806. There is in the U. S. National Herbarium a specimen of this species from Barbados (*Bot. Sta. Herb.* 448). It may have been cultivated at the Botanic Station. In the Krug and Urban Herbarium there is a specimen from the same island collected by Eggers (no. 7095).

### 33. AXONOPUS Beauv.

Inflorescence of 2 to many slender racemes, aggregated at the summit of the culm; spikelets depressed-biconvex, oblong-elliptic, solitary, sessile, the back of the fruit turned from the rachis; first glume wanting; sterile palea obsolete.

Rachis bearing conspicuous stiff spreading golden yellow hairs. (Section CABRERA.)

Plants annual; rachis over 1 mm. wide, extending beyond the spikelets.

1. *A. appendiculatus*.

Plants perennial; rachis slender, about 0.5 mm. wide, not extending beyond the spikelets-----2. *A. aureus*.

Rachis not bearing stiff hairs. (*AXONOPUS* proper.)

Plants annual, the delicate racemes 2 or 3-----3. *A. capillaris*.

Plants perennial.

Plants stoloniferous, the racemes 2 to 5-----4. *A. compressus*.

Plants erect, without stolons.

<sup>1</sup> Contr. U. S. Nat. Herb. 12: 212. 1909.

Racemes 100 or more, the axis elongate-----7. *A. pellitus*.

Racemes 4 to several.

Blades glabrous; racemes several; spikelets acute.

6. *A. macrostachyus*.

Blades, at least when young, ciliate and more or less villous;  
racemes few; spikelets obtuse-----5. *A. equitans*.

1. *Axonopus appendiculatus* (Presl).

*Paspalum appendiculatum* Presl, Rel. Haenk. 1: 211. 1830.

A slender sparingly branching annual with long smooth orange-colored internodes, thin yellowish green, sparsely hispid or glabrous, flat blades and 2 to 8 subdigitate racemes 3 to 6 cm. long, the flat green rachis bearing a row of stiff golden hairs on each margin and down the center between the 2 rows of small glabrous spikelets sunken in the rachis. A strikingly beautiful species.

Open grassy hillsides, Trinidad (St. Joseph, Hitchcock 10173) and northern South America. Originally described from Panama.

2. *Axonopus aureus* Beauv. Ess. Agrost. 12. 1812.

*Paspalum exasperatum* Nees, Agrost. Bras. 81. 1829.

*Panicum chrysites* Steud. Syn. Pl. Glum. 1: 38. 1854.

A tall slender branching perennial with wiry compressed culms, rather firm spreading flat blades, and a handsome inflorescence of 4 to 15 subdigitate slender golden-brown racemes, the stiff orange yellow hairs in tufts below the spikelets as well as along the margins.

Wet sandy savannas, Porto Rico and northern South America. Type locality not indicated in the original description. This species is described by Grisebach<sup>1</sup> under the name *Paspalum pulchrum*.

Porto Rico (Happy Hollow, near Rio Piedras) and Trinidad (Piarco Savanna).

3. *Axonopus capillaris* (Lam.) Chase. Proc. Biol. Soc. Washington 24: 133. 1911.

*Paspalum capillare* Lam. Tabl. Encycl. 1: 176. 1791.

*Paspalum minutum* Trin. Linnaea 10: 293. 1836.

A slender ascending branching, nearly glabrous annual, with thin blades 2.5 to 5 cm. long and about 4 mm. wide and with 2 or 3 delicate racemes about 2.5 cm. long on long subcapillary peduncles.

Forming patches on moist open ground, Central America to Trinidad (Pitch Lake, Hitchcock 10101) and Brazil. Originally described from tropical America, the exact locality not given. The type of *Paspalum minutum* is from Peru.

4. *Axonopus compressus* (Swartz) Beauv. Ess. Agrost. 12. 1812. CARPET GRASS.

*Milium compressum* Swartz, Prodr. Veg. Ind. Occ. 24. 1788.

*Paspalum platycaulon* Poir. in Lam. Encycl. Suppl. 5: 34. 1804.

*Paspalum compressum* Raspail, Ann. Sci. Nat. 5: 301. 1825.

*Digitaria platycaulis* Desv. Opusc. 62. 1831.

*Digitaria domingensis* Desv.; Kunth, Enum. Pl. 1: 49. 1833, as synonym of *Paspalum platycaule* Poir.

?*Paspalum filostachyum* A. Rich.; Steud. Syn. Pl. Glum. 1: 20. 1854.

*Anastrophus compressus* Schlecht.; Doell in Mart. Fl. Bras. 2<sup>o</sup>: 102. 1877.

A nearly glabrous perennial, under favorable conditions producing long leafy stolons with short broad obtuse blades, the flowering culms erect or ascending, compressed, with rather thin blades 8 to 10 mm. wide, and 2 to 5 slender racemes along a short axis, 2 or 3 secondary peduncles often produced from the upper

<sup>1</sup> Fl. Brit. W. Ind. 543. 1864.



node. This species is exceedingly variable in habit; in dry ground it sometimes has blades not over 2 or 3 mm. wide.

Moist grass land, southern United States to Argentina; also in the warmer parts of the Old World. Originally described from Jamaica. *Paspalum platycaulon* was described from Porto Rico, and *P. filostachyum* from the Antilles.

This species is an important pasture grass throughout the West Indies. Readily propagating by stolons, it tends to drive out other species, thus becoming dominant in lowland pastures. In Cuba this grass is called "cañamazo dulce," "cañamazo de sabana," and "cañamazo macho."

#### 5. *Axonopus equitans* sp. nov.

Perennial; culms erect, glabrous, 40 to 60 cm. tall, apparently branching only at the base; sheaths broad, compressed, keeled, the lower crowded and equitant, villous near the margin and on the collar, those of the stem 2, overlapping; ligule a dense row of hairs about 1 mm. long; blades rather stiffly ascending, flat, from a folded base, ciliate, rather sparsely villous on the lower surface, or the cauline glabrate, rather obtuse, 15 to 20 cm. long, 4 to 10 mm. wide, the uppermost 3 to 5 cm. long; racemes about 4, erect or ascending, slender, pubescent or somewhat villous at base, 7 to 15 cm. long, the rachis 3-angled, scarcely 0.5 mm. wide, the main axis 3 to 5 cm. long; spikelets nearly sessile, oblong, 2 mm. long, obtuse, in 2 rows, not crowded, the apex of one not reaching the base of the one above on the same side, sometimes not reaching the one on the opposite side; second glume rather strongly several-nerved, very minutely silky-pubescent at base and in a line down the internerves; sterile lemma equaling the second glume, 3-nerved, sparsely villous; fruit about as long as the second glume and sterile lemma, chartaceous, yellowish, obscurely pubescent at the tip.

Type in the U. S. National Herbarium, no. 865560, collected in grass land along the Fort George Road, Port of Spain, Trinidad, November 27, 1912, by A. S. Hitchcock (no. 9988).

#### 6. *Axonopus macrostachyus* sp. nov.

Perennial; culms erect, glabrous, branching, 1 to 1.5 meters tall, the cauline nodes about 2; sheaths glabrous, keeled but not strongly compressed, the lower bladeless; ligule a ciliate membrane less than 1 mm. long; blades flat, stiffly erect, those of the innovations conspicuously so, glabrous, scaberulous on the margin, abruptly rounded at the apex, as much as 50 cm. long, the uppermost about 12 cm. long, 4 to 7 mm. wide; racemes about 12, slender, erect or stiffly ascending, 15 to 25 cm. long, the main axis about 12 cm. long, the rachis 3-angled, narrow, 0.5 to 0.7 mm. wide, glabrous, scaberulous on the angles, slightly pubescent or villous at the base; spikelets in two rows, nearly sessile, each reaching scarcely to the base of the one on the same side or somewhat more distant, oblong-elliptic, acute, 3 mm. long, scarcely 1 mm. wide, whitish or purplish; second glume and sterile lemma thin, pointed beyond the fruit, 3-nerved or the midnerve faint or suppressed, minutely silky at base and on the margins, sometimes also in the internerves; fruit oblong, obtuse, 2 mm. long, minutely papillose-roughened, at maturity yellowish brown.

Type in the U. S. National Herbarium, no. 865561, collected in low open ground north of Pitch Lake, Trinidad, December 7, 1912, by A. S. Hitchcock (no. 10093).

Known only from the type collection.

#### 7. *Axonopus pellitus* (Nees).

*Paspalum pellitum* Nees; Trin. Gram. Pan. 89. 1826.

A tall flat-stemmed perennial with broad overlapping hirsute sheaths densely hairy on the collar, elongate, rather stiff, sparsely pilose blades, and an elongate

panicle of numerous laxly spreading racemes densely woolly in the axils, the plump oval spikelets with lines of silky pubescence.

Open grass land, Trinidad (Pitch Lake, *Hitchcock* 10094) to Brazil. Originally described from Brazil.

### 34. REIMAROCHLOA Hitchc.

Inflorescence of 2 to several slender racemes, approximate at the summit of the culm, spreading or reflexed at maturity; spikelets strongly compressed, acuminate, solitary, rather distant, subsessile, appressed to the flat rachis, the back of the fruit toward it as in *Paspalum*; both glumes wanting (or the second present in the terminal spikelet); fruit scarcely indurate, the palea free nearly half its length.

Spikelets about 2 mm. long; racemes several.....1. *R. brasiliensis*.

Spikelets about 5 mm. long; racemes 2 or 3.....2. *R. oligostachya*.

1. *Reimarochloa brasiliensis* (Spreng.) Hitchc. Contr. U. S. Nat. Herb. 12: 198. 1909.

*Agrostis brasiliensis* Spreng. Nov. Prov. Hal. 45. 1819.

*Reimaria conferta* Nees; Trin. Gram. Pan. 59. 1826.

*Reimaria brasiliensis* Schlecht. Bot. Zeit. 10: 17. 1852.

*Panicum oxanthum* Steud. Syn. Pl. Glum. 1: 41. 1854.

A tufted stoloniferous branching perennial, the leafy ascending flowering culms scarcely more than 10 cm. tall, with loose sheaths, flat rather lax blades, and about 10 delicate digitate racemes, the spikelets silky along the margin.

Wet ground around ponds, Cuba (Hanábana and Isle of Pines) and Santo Domingo to Brazil. Originally described from Brazil. The type of *Reimaria conferta* is from Brazil; of *Panicum oxanthum* from Santo Domingo.

2. *Reimarochloa oligostachya* (Munro) Hitchc. Contr. U. S. Nat. Herb. 12: 199. 1909.

*Reimaria oligostachya* Munro; Benth. Journ. Linn. Soc. Bot. 19: 34. 1882.

Stouter than the preceding, the flat culms often elongate, decumbent with ascending ends; racemes 1 to 3, terminal and axillary, stiff, at maturity widely divergent or deflexed.

Wet soil around ponds, Florida and Cuba (Hanábana, *Wright* 3854 in part). Originally described from eastern Florida.

### 35. PASPALUM L.

Inflorescence of 1 to many racemes, these racemose along a common axis; spikelets plano-convex, subsessile along a slender or winged rachis, the back of the fruit turned toward it; first glume typically wanting, present in a few species; fertile lemma and palea chartaceous-indurate.

Rachis with broad membranaceous wings more or less infolding the spikelets.

Spikelets clothed with long silky hairs; rachis margins golden yellow.

4. *P. heterotrichon*.

Spikelets glabrous; rachis margins green.

Racemes numerous, approximate.....3. *P. repens*.

Racemes few, distant.

Spikelets 2 mm. long, obovate.....1. *P. dissectum*.

Spikelets 3.2 to 3.4 mm. long, elliptic.....2. *P. serratum*.

Rachis without broad membranaceous wings.

Spikelets with a broad stiff lacerate margin.....19. *P. fimbriatum*.

Spikelets not lacerate-margined.

Inflorescence a large flabellate panicle of numerous racemes, the spikelets solitary.

Spikelets glabrous .....51. *P. fasciculatum*.

Spikelets with long silky hairs on the margin; racemes very slender.

60. *P. saccharoides*.

Inflorescence not flabellate, or if slightly so the spikelets in pairs.

Racemes 2, conjugate at the summit of the culm, rarely a third below.

Spikelets elliptic or narrowly ovate.

Culms erect, not stoloniferous nor rhizomatous.....20. *P. neesii*.

Culms ascending or erect from creeping stolons or rhizomes.

Second glume pubescent; spikelets somewhat turgid.

7. *P. distichum*.

Second glume and sterile lemma glabrous; spikelets flattened.

Blades erect or ascending, involute-setaceous...6. *P. distachyon*.

Blades spreading, tapering from base to apex, the margins involute .....5. *P. vaginatum*.

Spikelets suborbicular, broadly ovate or obovate.

Spikelets concavo-convex, sparsely long-silky around the margin; plants stoloniferous.....50. *P. conjugatum*.

Spikelets plano-convex, not silky-margined.

Spikelets 1.5 mm. or less long, more or less pubescent.

Plants annual; spikelets or some of them sprinkled with globular hairs .....45. *P. multicaule*.

Plants perennial; spikelets minutely pubescent.

47. *P. clavuliferum*.

Spikelets 1.8 to 3 mm. long, glabrous.

Spikelets golden brown, transversely marked with dark lines.

13. *P. serpentinum*.

Spikelets green, not marked.

Sheaths pubescent; spikelets about 1.8 mm. long.

12. *P. pumilum*.

Sheaths glabrous or sparsely ciliate only.

Spikelets less than 2.5 mm. long.....11. *P. minus*.

Spikelets 2.5 to 3 mm. long .....10. *P. notatum*.

Racemes 1 to many, racemose or fasciated on the axis, not conjugate.

Second glume wanting; sterile lemma dark crimson.

59. *P. pulchellum*.

Second glume present.

First glume present on at least one of the pair of spikelets.

Spikelets pubescent .....43. *P. ciliiferum*.

Spikelets glabrous.

Spikelets 1.5 mm. long.....41. *P. decumbens*.

Spikelets 2.6 to 3 mm. long.

Plants with hard scaly rhizomes.....57. *P. unispicatum*.

Plants more or less stoloniferous but having no rhizomes.

58. *P. pilosum*.

First glume normally wanting (rarely present on occasional spikelets).

Fruit dark brown and polished (see also no. 52 with brown but not polished fruit).

Plants annual.

Spikelets 2 to 2.2 mm. long; plants glabrous.

17. *P. melanospermum*.

Spikelets 2.4 to 3 mm. long; plants more or less pubescent.

18. *P. convexum*.

Plants perennial.

Spikelets elliptic; sterile lemma not transversely rugose.

16. *P. wrightii*.

Spikelets obovate to suborbicular; sterile lemma undulate-rugose just within the raised margin.

Blades flat, lax, broader at base than the summit of the sheath; culms decumbent at base-----15. *P. olivaceum*.

Blades conduplicate at base, stiff; culms erect.

14. *P. plicatulum*.

Fruit not dark brown and polished (brown but not polished in *P. virgatum*).

Racemes numerous, usually 15 or more (5 to 10 in *P. secans*, 1 to 2 meters tall).

Spikelets about 1.3 mm. long, subhemispheric, pubescent.

44. *P. paniculatum*.

Spikelets 1.8 mm. or more long.

Spikelets pubescent.

Fruit pale; spikelets elliptic, 2 mm. long.

56. *P. coryphaeum*.

Fruit brown; spikelets obovate, 3 mm. long.

52. *P. virgatum*.

Spikelets glabrous; blade margins sharply serrulate.

Spikelets elliptic or narrowly obovate; rachis glabrous; lower sheaths not nodulose-----53. *P. secans*.

Spikelets suborbicular or broadly obovate; rachis pilose, at least sparsely so; lower sheaths nodulose.

Rachis densely pilose; spikelets 1.8 to 2 mm. long.

55. *P. densum*.

Rachis sparsely pilose; spikelets 2 to 2.2 mm. long.

54. *P. millegrana*.

Racemes 1 to 5, rarely more.

Spikelets 2 mm. or more long.

Racemes subcylindrical, solitary (rarely 2); spikelets solitary, mostly rugose.

Blades pubescent, flat or subinvolute-----24. *P. nanum*.

Blades glabrous, concavo-convex in cross section.

Spikelets 2 mm. long; glume and sterile lemma not pointed beyond the fruit-----22. *P. filiforme*.

Spikelets 2.7 to 3 mm. long; glume and sterile lemma pointed beyond the fruit-----23. *P. lindenianum*.

Racemes not cylindrical, one or more; spikelets not rugose.

Blades not over 2.5 mm. wide, strongly involute; spikelets pubescent.

Blades glabrous, usually exceeding the racemes.

25. *P. alterniflorum*.

Blades pilose, short, clustered toward the base.

26. *P. rottboellioides*.

Blades 3 to 10 mm. wide, flat or becoming involute in drying.

Rachis 2 to 2.5 mm. wide; culms mostly decumbent at base; spikelets abruptly minutely pointed.

Spikelets glabrous, about 2.5 mm. long.

9. *P. denticulatum*.

Spikelets pubescent, 3 to 3.2 mm. long.

8. *P. pubiflorum*.

Rachis less than 1 mm. wide.

Blades firm, more or less involute-margined, narrower at the base than the summit of the sheath.

Culms 0.5 to 1 meter tall, not geniculate; blades elongate; spikelets pubescent (rarely glabrous).

35. *P. glabrum*.

Culms 20 to 40 cm. long, spreading, geniculate below; blades not over 10 cm. long; spikelets glabrous.

36. *P. bakeri*.

Blades thin, flat, mostly more or less ciliate, broader at the base than the summit of the sheath.

Spikelets glabrous; blades linear, scarcely 4 mm. wide, firm; culms stiffly erect from a short knotty rhizome -----

37. *P. rigidifolium*.

Spikelets minutely pubescent (exceptionally glabrous); blades lanceolate.

Blades short-pubescent and pilose on the upper surface-----

40. *P. debile*.

Blades glabrous on the surface or exceptionally

with a few hairs.

Spikelets ovate to suborbicular; blades lax.

39. *P. ciliatifolium*.

Spikelets obovate; blades somewhat stiff.

38. *P. propinquum*.

Spikelets not over 1.8 mm. long, usually less.

Plants annual, tufted, pilose; blades linear.

Spikelets orbicular or nearly so, at least some of them sprinkled with globular hairs-----

45. *P. multicaule*.

Spikelets elliptic, glabrous-----

46. *P. parviflorum*.

Plants perennial.

Culms creeping or decumbent and rooting at the nodes.

Spikelets pubescent-----

49. *P. reptatum*.

Spikelets glabrous.

Blades appressed-pubescent, commonly 8 to 10 cm. long; spikelets 1.8 mm. long-----

42. *P. nutans*.

Blades glabrous; spikelets 1.4 mm. or less long.

Racemes solitary, 1 to 1.2 cm. long----

31. *P. breve*.

Racemes 2 or 3, 2 to 3 cm. long; spikelets minute, yellowish-----

48. *P. orbiculatum*.

Culms tufted, not creeping nor decumbent.

Racemes 2 to 10.

Nodes appressed-pubescent; spikelets usually solitary.

29. *P. poiretii*.

Nodes glabrous; spikelets in pairs.

Spikelets about 1.3 mm. long, obovate, blunt, crowded, glandular-pubescent.

34. *P. simpsoni*.

Spikelets 1.5 to 1.8 mm. long, elliptic.

Primary pedicel much shorter than its spikelet, the spikelets crowded.

Racemes 2 to 3 cm. long, rather thick.

32. *P. caespitosum*.

Racemes 5 to 10 cm. long, slender.

35. *P. glabrum*.

Primary pedicel nearly as long as its spikelet, the spikelets not crowded; racemes slender.

33. *P. portoricense*.

Racemes solitary.

Blades not over 1 mm. wide, concavo-convex or subterete in cross section.

Plants delicate; blades subterete.

30. *P. capillifolium*.

Plants wiry; blades concavo-convex.

21. *P. leptocaulon*.

Blades or some of them 2 mm. or more wide, flat or involute.

Nodes glabrous; culms leafy; blades flat; spikelets in pairs.

Blades 5 to 8 mm. wide-----38. *P. propinquum*.

Blades not over 3 mm. wide.

47. *P. clavuliferum*.

Nodes appressed-pubescent; culms delicate, the leaves mostly clustered at the base; spikelets solitary (rarely a few paired).

Spikelets pubescent-----29. *P. poiretii*.

Spikelets glabrous.

Spikelets 1 mm. long-----27. *P. rupestre*.

Spikelets 1.5 mm. long-----28. *P. leoninum*.

1. *Paspalum dissectum* (L.) L. Sp. Pl. ed. 2. 1: 81. 1762.

*Panicum dissectum* L. Sp. Pl. 57. 1753.

*Paspalum membranaceum* Walt. Fl. Carol. 75. 1788.

A subaquatic glabrous creeping perennial with flat spreading blades about 5 cm. long and few short racemes, the rachis broad, membranaceous, inflexed over the base of the small pale oval spikelets.

On muddy banks of ponds and ditches or in shallow water, southeastern United States and Cuba. Originally described from North America, probably Delaware; *P. membranaceum* described from South Carolina.

2. *Paspalum serratum* sp. nov.

A glabrous aquatic perennial with rather soft elongate sparingly branching culms, as much as 1.5 meters long, bearing a few rootlets at the nodes, the internodes flattened, more or less angled in drying; sheaths thin, loose, overlapping on the flowering branches; ligule 2 mm. long, hyaline, erose; blades suberect, soft, thin, flat, 3.5 to 9 cm. long, 4 to 7 mm. wide, abruptly rounded at base; panicles terminal on leafy branches, short-exserted or included at base, consisting of 2 (rarely 1) divergent racemes, the slender common axis about 12 mm. long; racemes 3 to 4.5 cm. long, the rachis membranaceous, green, 3 to 3.5 mm. wide, the margins inflexed over the base of the spikelets, naked at the base, terminating at the base of the uppermost spikelet; spikelets solitary in two rows, 3.2 to 3.4 mm. long, 1.4 mm. wide, elliptic, acute, the thin faintly 3-nerved glume and sterile lemma pointed beyond the fruit; fruit elliptic-

obovate, obscurely papillose-roughened, the very tip bearing a few minute thick hairs.

Type in the U. S. National Herbarium, no. 694431, collected in the water of a small pool, Troy, Jamaica, November 6, 1912, by A. S. Hitchcock (no. 9795).

*Paspalum scrratum* is most nearly related to *P. dissectum*, from which it differs in its sparingly branching habit, less leafy culms, and larger pointed spikelets. Known only from the type collection and from a fragmentary specimen in the Grisebach Herbarium, collected by Alexander Prior in Jamaica.

3. *Paspalum repens* Berg. Act. Helv. Phys. Math. 7: 129. pl. 7. 1772.

*Cercsia fluitans* Ell. Bot. S. C. & Ga. 1: 109. 1816.

*Paspalum fluitans* Kunth, Rév. Gram. 1: 24. 1829.

An aquatic or subaquatic perennial, with submerged stems and floating branches buoyed up by the inflated sheaths, with thin flat blades and with panicles of numerous spreading racemes, the small flat elliptic whitish spikelets in 2 rows on the broad green rachis.

In sluggish streams or standing water, southeastern United States to Paraguay. Originally described from Dutch Guiana; *Cercsia fluitans* described from Georgia.

Western Jamaica and Trinidad (Caroni Savanna).

PASPALUM RACEMOSUM Lam.<sup>1</sup> (*P. stoloniferum* Bosc).<sup>2</sup> A South American creeping perennial with tawny or ferruginous panicles of numerous short racemes, the spikelets with deeply fluted glume and sterile lemma, cultivated as an ornamental in the Tropics, sometimes escaped. Collected in Habana-Vedado, León 759.

4. *Paspalum heterotrichon* Trin. Gram. Icon. 3: pl. 285. 1831.

*Paspalum heterotrichon* var. *paucispicatum* Hack. Notizbl. Bot. Gart. Berlin 1: 328. 1897.

A tall very slender wiry perennial leaning upon or clambering among other vegetation, branching above, the narrow spreading blades becoming involute, the few racemes with a broad golden yellow membranaceous rachis and silvery silky spikelets.

Open grassy slopes and savannas, at moderate altitudes, Panama to Brazil, whence originally described, and in Haiti, the type locality of the variety.

5. *Paspalum vaginatum* Swartz, Prodr. Veg. Ind. Occ. 21. 1788.

*Digitaria foliosa* Lag. Gen. & Sp. Nov. 4. 1816.

*Paspalum brachiatum* Trin.; Nees, Agrost. Bras. 62. 1829.

*Paspalum foliosum* Kunth, Rév. Gram. 1: 25. 1829

*Paspalum inflatum* A. Rich. in Sagra, Hist. Cuba 11: 298. 1850.

*Paspalum distichum* var. *vaginatum* Swartz; Griseb. Fl. Brit. W. Ind. 541. 1864.

*Sanguinaria vaginata* Bubani, Fl. Pyren. 4: 258. 1901.

An extensively creeping perennial with loose sheaths and spreading involute-margined blades 2 to 6 mm. wide, tapering from base to apex, the sterile runners often stout with closely imbricate leaves, the flowering branches ascending, commonly 20 to 30 cm. tall, with a pair of divergent racemes (rarely 3) at the apex, the flat acuminate spikelets usually 3 to 4 mm. long.

Sea coasts and brackish sands, Gulf Coast and the West Indies to South America. Originally described from Jamaica; *Digitaria foliosa* and *Paspalum*

<sup>1</sup>Tabl. Encycl. 1: 176. 1791.

<sup>2</sup>Trans. Linn. Soc. 2: 83. pl. 16. 1794.

*inflatum* described from Habana, Cuba; *P. brachiatum* was a name in Sieber's herbarium of Martinique.

Bermuda, Bahamas (New Providence, Long Cay), Cuba, Jamaica, Porto Rico, St. Croix, Martinique, Barbados, Trinidad, and Tobago.

6. *Paspalum distachyon* Poit.; Trin. Mém. Acad. St. Pétersb. VI. Sci. Nat. 1: 142. 1834.

An erect perennial with slender striate yellow rhizomes and tufted erect slender wiry glabrous culms 20 to 40 cm. tall; sheaths about as long as the internodes or slightly overlapping, glabrous or with a few hairs at the summit; ligule membranaceous, about 0.2 mm. long; blades erect or ascending, 5 to 10 cm. long (rarely longer), 1 to 2 mm. wide, involute, glabrous or obscurely pubescent on the upper surface; racemes 2 at the apex of the culm, usually naked at the base, 3 to 5.5 cm. long, 2 mm. broad or slightly broader, erect or slightly divergent, the flexuous rachis 0.5 to 0.7 mm. wide, minutely scabrous on the margin; spikelets solitary, glabrous, on minute pubescent pedicels, not at all imbricate, 2.6 to 3 mm. long, 1.4 mm. wide, abruptly acuminate, the glume and sterile lemma equal, exceeding the fruit, 3-nerved, or the midnerve of the sterile lemma occasionally suppressed, the lemma sometimes transversely wrinkled; fruit about 2.1 mm. long, 1.2 mm. wide, subacute.

Closely related to *P. vaginatum* but much more slender, rhizomatous instead of stoloniferous, or very rarely producing stolons as well as rootstocks, the sheaths not crowded nor inflated, the blades narrower, softer, and involute-setaceous. *Paspalum distachyon* might be supposed to be a depauperate form of *P. vaginatum* but that depauperate forms of that species are dwarfed and stout, not elongate and slender. The specimens cited below are remarkably uniform in character, *P. distachyon* being apparently much less variable than *P. vaginatum* or *P. distichum*.

Moist or dry brackish or alkaline soil, mostly near the coast, Cuba and Jamaica. Described from "Doming[o]." The type has not been examined, but the description so well applies to our specimens as to leave little doubt of their identity.

Cuba (Habana, Tiffin (Camaguey), and Victoria de las Tunas) and Jamaica (Montego Bay, Savanna-la-Mar, Black River, and Inverness).

7. *Paspalum distichum* L. Syst. Nat. ed. 10. 2: 855. 1759.

Similar to *P. vaginatum*, the flowering culms commonly taller, the blades slightly wider and softer.

Ditches and wet (rarely brackish) places, southern United States and West Indies to South America; also in the Old World. The source of Linnæus's specimen is unknown. Called "sacasebo" in Cuba.

Bermuda, Bahamas (New Providence, Watling Island), Cuba, Jamaica, Porto Rico, St. Croix, Antigua, Martinique, Guadeloupe, St. Lucia, Grenada, Trinidad, and Tobago.

8. *Paspalum pubiflorum* Rupr.; Fourn. Mex. Pl. 2: 11. 1886.

Culms compressed, usually decumbent at base, the nodes and sheaths commonly pubescent; blades flat, 8 to 12 cm. long, 5 to 6 mm. wide; racemes few to several, ascending, rather stout; 1 to 5 cm. distant on the axis; the spikelets in pairs, pubescent.

Along ditches and in waste ground, southwestern United States to Bolivia; represented in Cuba by a single collection from Finca del Obispo, near Habana, León 1986, the specimen less pubescent than typical. Originally described from Mexico.



**9. *Paspalum denticulatum* Trin. Gram. Pan. 111. 1826.**

*Paspalum lividum* Trin.; Scheele, *Linnaea* 26: 383. 1854.

A tufted glabrous perennial; culms compressed, ascending from a decumbent base; blades flat, lax; racemes 3 to 5, subflexuous, approximate on the very slender axis, the rachis rather broad, the glabrous spikelets commonly lurid purplish, the glume and sterile lemma very thin.

Along ditches and in wet ground, southern United States to South America and in Cuba (vicinity of Habana). Originally described from South America; *P. lividum* described from Mexico.

**10. *Paspalum notatum* Flügge, Monogr. Pasp. 106. 1810.**

*Paspalum taphrophyllum* Steud. Syn. Pl. Glum. 1: 19. 1854.

Culms tufted, ascending from a short hard rhizome, forming tough mats, the leaves crowded at base, the blades flat, 5 to 8 mm. wide, often elongate; racemes 2, approximate, diverging, usually arcuate; spikelets solitary, ovate, 2.5 to 3 mm. long, the glume and sterile lemma papery, shining.

Mexico and the West Indies to South America; in the West Indies common on open slopes and pastures from sea level to 1,000 meters altitude. The spikelets are variable in size, sometimes 3.5 mm. long. Originally described from St. Thomas; *P. taphrophyllum* described from Martinique.

Cuba, Jamaica, Haiti, Porto Rico, Antigua, Guadeloupe, Martinique, and Grenada.

**11. *Paspalum minus* Fourn. Mex. Pl. 2: 6. 1886.**

Closely related to *P. notatum*, perhaps not specifically distinct; spikelets less than 2.5 mm. long, less shining; racemes more widely diverging, lower leaves often sparsely ciliate.

Open ground, southern Mexico and West Indies to Uruguay. Originally described from Mexico.

Cuba (Province of Pinar del Río and Isle of Pines), Jamaica (Bull Head Mountain), and Porto Rico (Trujillo Alto).

**12. *Paspalum pumilum* Nees, Agrost. Bras. 52. 1829.**

Resembling *P. notatum*, densely tufted, leafy at base, forming mats, the few slender culms ascending; sheaths and commonly the blades pubescent; racemes 2, approximate, arcuately divergent, the dull oval spikelets about 1.8 mm. long.

Moist savannas, Leeward Islands to Uruguay. Originally described from Brazil.

Dominica and Trinidad (Piarco Savanna).

**13. *Paspalum serpentinum* Hochst.; Steud. Syn. Pl. Glum. 1: 22. 1854.**

Densely tufted, with gray-villous foliage and slender erect culms 50 to 60 cm. tall, the long erect stiff blades drying involute; racemes a slightly divergent pair, the spikelets solitary, nearly orbicular, about 2.5 mm. long, golden brown, transversely marked with dark lines.

Wet, sandy savannas, Trinidad and Dutch Guiana. Originally described from the latter place and known only from the type collection until found in Trinidad (Piarco Savanna, *Hitchcock* 10337).

**14. *Paspalum plicatulum* Michx. Fl. Bor. Amer. 1: 45. 1803.**

*Paspalum undulatum* Poir. in Lam. Encycl. 5: 29. 1804.

*Paspalum antillense* Husn. Enum. Glum. 13. 1871.

A tufted suberect perennial, 0.5 to 1 meter tall, with compressed simple culms, linear blades 5 to 10 mm. wide, sometimes sparsely pilose, and few to several arcuate-spreading racemes, 4 to 8 cm. long, the spikelets in pairs, drab-

colored, drying brown, oval, about 2.5 mm. long, strongly plano-convex, the sterile lemma at maturity finely undulate inside the slightly raised margin; fruit dark brown, shining.

Open slopes, banks, and savannas, mostly moist soil, southeastern United States to Argentina; throughout the West Indies except Bermuda and the Bahamas. Originally described from Georgia and Florida; *Paspalum undulatum* described from Porto Rico, and *P. antillense* from Guadeloupe.

15. *Paspalum olivaceum* sp. nov.

A leafy annual, olivaceous when dry; culms glabrous, slightly fleshy, compressed-striate when dry, 40 to 60 cm. long, ascending from a decumbent base, often rooting at the lower nodes, finally bearing simple floriferous branches; sheaths loose, thin, compressed, glabrous; ligule membranaceous, erose, 1.5 to 2 mm. long; blades lax, erect, at least at the base, flat, or folded at base, commonly 10 to 15 cm. long, 6 to 10 mm. wide, usually pilose on the upper surface at base, otherwise glabrous; panicle short-exserted from the bladeless upper sheath, the slender subflexuous axis 4 to 7 mm. long; racemes 3 to 7, arcuate-spreading, 2 to 3.5 cm. long, the rachis scarcely 1 mm. wide, a few long hairs at the base; spikelets mostly in pairs, 2 mm. long, 1.5 mm. wide, obovate, strongly convex on the back; glume and sterile lemma equal, 5-nerved, thin and commonly torn, glabrous or the glume obscurely strigose, the lemma often minutely wrinkled inside the slightly raised margin; fruit dark brown, shining, obovate-hemispherical.

Type in U. S. National Herbarium, no. 559837, collected in the island of Guadeloupe, September 23, 1897, by Père Duss (no. 3915).

*Paspalum olivaceum* is one of the group of brown-fruited annuals to which *P. boscianum* belongs. Because of its wrinkled sterile lemma it looks like a small lax-leaved *P. plicatulum*, from which species it differs in its branching culms and smaller spikelets and in being an annual. No habitat is given on the labels of the specimens, but the species is, probably, like its allies, found along ditches and in wet clay ground. Guadeloupe, Martinique, and the Guianas.

16. *Paspalum wrightii* sp. nov.

A glabrous perennial, the culms 1.5 meters or more long, simple, decumbent or floating at the base, with rootlets at the distant nodes, lush, with loose overlapping sheaths, the upper sheaths close, elongate; ligule membranaceous, 1 mm. long; blades suberect, rather firm, 20 to 40 cm. long, about 5 mm. wide (the uppermost greatly reduced), involute toward the summit, scabrous on the margins and bearing a tuft of long hairs just back of the ligule; racemes 5 or 6, ascending, 4 to 6 cm. long, the common axis slender, 8 to 10 cm. long, not hairy in the axils or with one or two hairs only; rachis 1.5 mm. wide, glabrous, the margin minutely scabrous; spikelets in pairs, closely imbricate, 2.2 to 2.5 mm. long, about 1.4 mm. wide, elliptic to slightly obovate, glabrous, the glume and sterile lemma equal, thin, slightly and irregularly wrinkled, 3-nerved or with an additional obscure pair near the margin; fruit about 2.2 mm. long, 1.2 mm. wide, elliptic, chestnut-brown, the rolled margins of the lemma pale.

Type in the U. S. National Herbarium, no. 865562, collected in Cuba by Charles Wright (no. 3843).

Apparently an aquatic or semiaquatic and probably allied to *Paspalum plicatulum*. Known only from the type collection, on which is given no date and no locality other than Cuba. The floating habit is inferred from the texture of the lower part of the culm and its loose slightly inflated sheaths. In the

specimen of *Wright* 3843 in herbarium of the Academia de Ciencias de la Habana there is a small shoot from one of the submerged nodes, indicating a stoloniferous habit. This is the species doubtfully referred to *P. elatum* Rich. by Hitchcock<sup>1</sup> and described under that name by Nash.<sup>2</sup> *Paspalum elatum* is described as having spikelets twice as wide as the rachis and a first glume half as long as the spikelet on one of the pair. It must be, as Doell suggests, allied to *Panicum monostachyum* (*Paspalum pilosum*).

17. *Paspalum melanospermum* Desv. in Poir. in Lam. Encycl. Suppl. 4: 315. 1816.

An erect nearly glabrous annual, 30 to 40 cm. tall; culms compressed, branching, commonly purplish; sheaths thin, loose, with a hyaline shining golden brown margin; blades flat, lax with a very narrow pale shining margin; racemes 2 or 3, the lateral arcuate-spreading, about 2 cm. below the erect or curved terminal one; rachis about 1.5 mm. wide; spikelets solitary or paired, rusty drab, strongly plano-convex, broadly obovate, 2 to 2.2 mm. long, the glume and sterile lemma thin; fruit dark brown, shining.

Moist clay banks and slopes, Florida and the West Indies to Brazil. Originally described from Cayenne. North American specimens have been referred to *P. scrobiculatum* L., a species described from India. This is the species listed as *P. boscianum* Flügge by Nash in the Grasses of Porto Rico.<sup>3</sup>

Porto Rico (Monte Mesa, Monte Alegrillo, and Sierra de Luquillo).

18. *Paspalum convexum* Humb. & Bonpl. in Flügge, Monogr. Pasp. 175. 1810.

*Paspalum hemicryptum* Wright, Anal. Acad. Cienc. Habana 8: 204. 1871.

A tufted leafy annual, the spreading culms usually 20 to 30 cm. long, commonly bearing short flowering branches from all the upper nodes; blades flat, glabrous to conspicuously pilose; racemes mostly 2 to 4, short and thick, the heavy hemispheric spikelets 2.4 to 2.8 mm. long, the base of the short panicle often included. An exceedingly variable species; *Wright* 3847 from El Salado, Cuba, the type of *P. hemicryptum*, has pilose blades and spikelets 2.4 mm. long.

Open ground, fields, and waste places, Central Mexico to Costa Rica; also in Cuba (El Salado) and Trinidad (La Brea). *Paspalum convexum* was described from Mexico.

19. *Paspalum fimbriatum* H. B. K. Nov. Gen. & Sp. 1: 93. 1816.

An erect or ascending annual, 30 to 100 cm. tall, with ciliate sheaths, lax blades, and few to several ascending racemes, the imbricate spikelets with a broad flat lacerate corky wing margin ciliate on the edge.

Roadsides and waste places, West Indies and northern South America. Originally described from Colombia.

Bahamas (Andros, New Providence, Eleuthera), Jamaica, Porto Rico, St. Croix, Antigua, Montserrat, Dominica, Martinique, Guadeloupe, Barbados, and Trinidad.

20. *Paspalum neesii* Kunth, Rév. Gram. 1: 25. 1829.

*Paspalum angustifolium* Nees, Agrost. Bras. 64. 1829, not Le Conte, 1820, nor Nees, 1826.

An erect tufted perennial with slender culms 40 to 100 cm. tall, linear elongate firm involute or folded blades, and a long-exserted inflorescence of 2 suberect racemes, 3 to 5 cm. long, the common axis about 1 cm. long; rachis very slender; spikelets solitary, elliptic, 4 to 4.5 mm. long, about 1.7 mm. wide.

<sup>1</sup> Contr. U. S. Nat. Herb. 12: 202. 1909.

<sup>2</sup> N. Amer. Fl. 17: 188. 1912.

<sup>3</sup> Bull. Torrey Club 30: 376. 1903.

Pine land, Cuba (Province of Pinar del Río and Isle of Pines), Brazil, and Paraguay. Originally described from Brazil. This is the species listed as *P. lineare* Trin. by Hitchcock.<sup>1</sup> That is a coarser plant with larger spikelets, not known from the West Indies.

21. *Paspalum leptocaulon* Nash, N. Amer. Fl. 17: 181. 1912.

Plants in large dense tussocks, the very slender elongate blades and culms reclining, commonly 50 cm. long, sometimes longer, the solitary slender arcuate racemes 3 to 8 cm. long, the solitary glabrous ovate spikelets about 1.6 mm. long, the glume and sterile lemma scarcely or not at all inflated.

Open grass land in the Greater Antilles. Described from Lacovia, Jamaica, Britton 1475 being the type.

Cuba, Santo Domingo, and western Jamaica.

22. *Paspalum filiforme* Swartz, Prodr. Veg. Ind. Occ. 22. 1788.

*Paspalum swartzianum* Flüggé, Monogr. Pasp. 96. 1810.

*Paspalum lineare* Swartz; Steud. Nom. Bot. ed. 2. 2: 272. 1841, as synonym of *P. swartzianum*.

Stouter than the preceding, the blades thicker, lunate in cross section; spikelets 2 mm. long, the glume and sterile lemma loose, wrinkled, the glume much inflated at maturity, the spikelets irregularly rhombic.

Open mostly dry or sterile slopes, Cuba and Jamaica. Originally described from Jamaica. Sometimes called "wiregrass."

23. *Paspalum lindenianum* A. Rich. in Sagra, Hist. Cuba 11: 299. 1850.

*Paspalum longifolium* Steud. Syn. Pl. Glum. 1: 21. 1854, not Roxb. 1820.

*Paspalum megaphyllum* Steud. Syn. Pl. Glum. 1: 464. 1854.

Stouter and on the average taller than nos. 21 and 22, the blades commonly equaling the long curved raceme; spikelets 3 mm. long, the glume and sterile lemma loose and wrinkled as in *P. filiforme*, pointed beyond the fruit.

Open slopes and rocky or dry savannas, Cuba and Jamaica. Described from Cuba, Linden 1813 being the type of *P. lindenianum* and of *P. longifolium*, *P. megaphyllum* being a change of name for the latter.

24. *Paspalum nanum* Wright; Griseb. Cat. Pl. Cub. 230. 1866.

*Paspalum caudicatum* Wright, Anal. Acad. Cienc. Habana 8: 205. 1871.

Tufted, erect, the sheaths and blades villous, the blades flat, 8 to 14 cm. long, 2.5 to 5 mm. wide, much shorter than the long slender culms; raceme 4 to 6 cm. long, the spikelets about 2.5 mm. long, the glume and sterile lemma loose and wrinkled.

Sandy savannas, central and western Cuba. The type locality of *P. nanum* is Hanábana and of *P. caudicatum*, Vuelta Abaja.

25. *Paspalum alterniflorum* A. Rich. in Sagra, Hist. Cuba 11: 299. 1850.

*Paspalum dolichophyllum* Hack. Inf. Est. Centr. Agron. Cuba 1: 409. 1906.

Densely tufted, erect, commonly 30 to 60 cm., sometimes 1 meter, tall; sheaths rather loose; blades involute, flexuous, mostly overtopping the erect, usually solitary racemes; spikelets narrowly ovate, about 2.5 mm. long, the glume and sterile lemma villous toward the base, equal, exceeding the fruit.

Moist savannas, central and western Cuba, whence originally described; the type of *P. dolichophyllum* also from Cuba, Baker & Zarragoitia 4545.

26. *Paspalum rottboellioides* Wright, Anal. Acad. Cienc. Habana 8: 204. 1871.

Culms tufted, slender, erect, 30 to 60 cm. tall; leaves mostly clustered at the base, the pilose linear blades about 2 mm. wide; racemes 1 or 2, 6 to 8 cm.

<sup>1</sup> Contr. U. S. Nat. Herb. 12: 203. 1909.

long, suberect, the common axis about 1.5 cm. long; spikelets solitary, often reddish, 3 mm. long, 1 mm. wide, oblong-elliptic, the glume pilose, the sterile lemma glabrous or pilose at the base.

Sandy savannas, Cuba (Vuelta Abaja and Isle of Pines), *Wright* 3864 from Vuelta Abaja being the type specimen.

**27. *Paspalum rupestre* Trin. Linnaea 10: 293. 1836.**

A low perennial with delicate simple naked culms arising from a tuft of ciliate subinvolute blades not over 2 mm. wide, commonly 3 to 5 mm. long; racemes commonly 1.5 to 2 cm. long, the oblong-oval glabrous spikelets 1 mm. long.

Open arid rocky slopes, Cuba (El Yunque) and Porto Rico (Monte Mesa). Originally described from a collection made by Poeppig in Cuba; apparently rare. *Wright*<sup>1</sup> gives *Nees* as the author of *P. rupestre*.

**28. *Paspalum leoninum* Chase in Hitchc. Bot. Gaz. 51: 300. 1911.**

Larger than the preceding, forming dense mats, the slender culms commonly 20 to 30 cm. long, reclining; blades 2 to 3 mm. wide, flat when fresh, conspicuously ciliate, often with a waxy luster, more or less involute in drying; racemes commonly 3 to 4 cm. long, the spikelets about 1.5 mm. long.

Open rocky slopes, mostly serpentine, Cuba (Guanabacoa, Campo Florido, and Sancti Spiritus) and Porto Rico (Monte Mesa, Monte Alegrillo, and Indiera Fria). Described from Cuba, *León* 950 being the type.

**29. *Paspalum poiiretii* Roem. & Schult. Syst. Veg. 2: 878. 1817.**

*Paspalum gracile* Poir. in Lam. Encycl. Suppl. 4: 313. 1816, not *Rudge*, 1805.

Plants caespitose, with tough matted roots; culms usually 15 to 40 cm. tall, simple or rarely branching, very slender but wiry, leaning or spreading, flattened, more or less twisted and tortuous, glabrous; nodes appressed-pubescent; leaves mostly crowded toward the base, the lower sheaths overlapping, the upper sheath remote, bladeless or nearly so; sheaths hirsute along the margin and at the summit, sometimes sparingly so throughout; ligule membranaceous, scarcely 0.5 mm. long; blades rather thick, 3 to 10 cm. long, 3 to 5 mm. wide, tapering to the base, usually flat when fresh, folded or involute in drying, more or less tortuous, sometimes conspicuously so, a few hairs about the ligule, otherwise glabrous, or sometimes sparsely pilose; inflorescence long-exserted, terminal on the culm or a leaf-bearing branch (not truly axillary); racemes commonly 1 (sometimes a second, 1 to 1.5 cm. distant), 2 to 4 cm. long, erect or falcate; rachis 1 mm. wide, glabrous or minutely strigose, bearing a few long hairs at the base; spikelets usually solitary but the second spikelet of the pair sometimes developed toward the summit of the raceme; pedicels about 0.5 mm. long, flattened, glabrous or nearly so; spikelets 1.3 to 1.5 mm. long, 1 to 1.1 mm. wide, oval, blunt; second glume and sterile lemma covering the fruit. 3-nerved, appressed-pubescent or the lemma sometimes glabrous; fruit pale.

Rocky, mostly limestone soil, the Greater Antilles. Originally described from Santo Domingo. This species is included in *P. rupestre* Trin. as listed by Hitchcock<sup>2</sup> and is the species described under that name by *Nash*.<sup>3</sup> We have not seen the type of *P. gracile*, of which *P. poiiretii* is a change of name.

Cuba, Jamaica, Santo Domingo (Azua), and Porto Rico (Aguada and Lares).

**30. *Paspalum capillifolium* Nash, N. Amer. Fl. 17: 181. 1912.**

A low, densely tufted glabrous perennial with filiform culms and blades, the latter about 5 cm. long; raceme solitary, slender, 2 to 4 cm. long, the glabrous elliptic spikelets about 1.7 mm. long.

<sup>1</sup> Anal. Acad. Cienc. Habana 8: 202. 1871.

<sup>2</sup> Contr. U. S. Nat. Herb. 12: 206. 1909.

<sup>3</sup> N. Amer. Fl. 17: 182. 1912.

Palm barren, Cuba. Known only from the type collection from Santa Clara, Britton & Wilson 6116.

31. *Paspalum breve* Chase in Hitchc. in Urban, Symb. Antill. 7: 166. 1912.

A low glabrous stoloniferous perennial forming dense mats, the subfiliform flat culms 5 to 8 cm., rarely 10 cm., tall, the numerous basal blades about 5 cm. long, 2 to 4 mm. wide, flat, somewhat involute in drying; racemes solitary, 10 to 12 cm. long, the imbricate, shining, broadly oval spikelets about 1.4 mm. long.

Stony slopes, Cuba (Province of Habana, whence originally described, León 1996 from Marianao being the type), and Sancti Spiritus.

32. *Paspalum caespitosum* Flügge, Monogr. Pasp. 161. 1810.

*Paspalum heterophyllum* Desv.; Poir. in Lam. Encycl. Suppl. 4: 315. 1816.

*Paspalum lanceaefolium* Desv. Opusc. 58. 1831.

Densely caespitose, the slender culms commonly 30 to 60 cm. tall, with a hardened slightly enlarged base; blades commonly 10 to 20 cm. long and 4 to 7 mm. wide, often bluish, rather firm, flat, usually somewhat involute in drying; racemes mostly 3 to 5, remote, ascending, commonly 2 to 3 cm. long, the crowded obovate spikelets about 1.6 mm. long, in pairs, mostly pale with green nerves, minutely pubescent. The blades are variable in size and shape, usually but not always narrowed at the base.

Limestone cliffs and slopes, mostly near the coast, Florida, Bahamas, and the Greater Antilles. *Paspalum caespitosum* and *P. heterophyllum* were described from Santo Domingo. *Paspalum lanceaefolium* is a second name for *P. heterophyllum*.

Bahamas (Andros and Great Exuma), Cuba, Jamaica, Santo Domingo, and Porto Rico.

33. *Paspalum portoricense* Nash, Bull. Torrey Club 30: 377. 1903.

Tufted, usually olivaceous, the slender culms spreading, 25 to 40 cm. long; blades rather thin, flat, commonly 5 to 10 cm. long, 4 to 5 mm. wide (rarely narrower and involute); racemes 2 or 3, remote, slender, laxly arcuate-ascending, 4 to 6 mm. long; spikelets elliptic, about 1.7 mm. long and 0.8 mm. wide, subacute, minutely appressed-pubescent, in pairs, not crowded.

Open hilltops and slopes, mostly in red clay, Bahamas (Crooked Island) and Porto Rico (not infrequent). Originally described from Porto Rico, Heller 524, collected between Aibonito and Cayey, being the type. This may be *Paspalum richardii* Steud.<sup>1</sup>, the description of which, from "ins. Antillae," well applies to this species.

34. *Paspalum simpsoni* Nash, Bull. Torrey Club 24: 39. 1897.

Glabrous; culms commonly 0.5 to 1 meter tall, slender, erect or ascending, a leafless flowering branch sometimes borne at the upper node, otherwise simple; blades flat, firm, 5 to 15 cm. long, rarely longer, 5 to 10 mm. wide; racemes few to several, arcuate-spreading, remote on a very slender axis, the minute obovate glandular-pubescent spikelets in pairs, crowded.

Open or brushy limestone soil, southern Florida, the Bahamas, and the Greater Antilles. Originally described from Florida.

Bahamas (Great Bahama, Andros, Nassau, New Providence, Watling Island, Inagua), Cuba (on the south coast), Jamaica, and Porto Rico.

35. *Paspalum glabrum* Poir. in Lam. Encycl. 5: 30. 1804.

*Paspalum milioides* Desv.; Poir. in Lam. Encycl. Suppl. 4: 315. 1816.

*Paspalum miliare* Spreng. Syst. Veg. 1: 247. 1825.

*Paspalum helleri* Nash, Bull. Torrey Club 30: 376. 1903.

<sup>1</sup> Syn. Pl. Glum. 1: 17. 1854.

In small tufts, glabrous as a whole, the slender culms often 1 meter tall, ascending, simple, the long rather stiff blades folded or involute toward the apex, scabrous on the margin, and with a few long white hairs above the ligule; racemes few to several, rather distant, 5 to 10 cm. long, mostly arcuate-divaricate, the crowded spikelets 1.8 to 2 mm. long, obovate-oval, pubescent, or rarely glabrous.

Mostly in partially shaded limestone soil, Florida and the West Indies. Poiret's description is insufficient for identification, but Mr. Nash, who has examined the specimen, notes, comparing it with *Heller* 10, the type of *P. helleri*, that the "type of *P. glabrum* Poir. is a more slender plant with smaller glabrous spikelets." This, the typical but less common form, is represented by *Britton & Brace* 404, from the Bahamas, and by *Chase* 6408, 6423, 6618, from Porto Rico. It differs only in having glabrous spikelets. In *Heller* 10 the spikelets are 2 mm. long, but in many specimens having pubescent spikelets the spikelets are but 1.8 mm. long, as in the plants with glabrous spikelets just mentioned, while in *Chase* 6499, from Porto Rico, the glabrous spikelets are 2 mm. long. In *Hitchcock* 9674, from Jamaica, the spikelets are 2 mm. long, most of them wholly glabrous, but a few pubescent on the convex side as in the type of *P. helleri*. No other character can be found to differentiate the specimens with pubescent from those with glabrous spikelets. The type specimens of all the names given are from Porto Rico.

Bahamas (New Providence, Nassau, Andros, Fortune Island, and Inagua), Cuba, Santo Domingo, Jamaica (Montego Bay), Porto Rico (common throughout, a characteristic plant of cocoanut groves), St. Thomas, St. Croix, Anagada, Tortola, St. Jan, Dominica, Martinique, Grenada, and Barbados.

**36. *Paspalum bakeri* Hack. Inf. Est. Centr. Agron. Cuba 1: 410. 1906.**

A glabrous tufted perennial, the flattened culms widely spreading, 20 to 45 cm. long, finally branching, the stiff divergent, rather short blades involute-pointed; racemes 2 or 3, suberect, 2 to 6 cm. long, 1 to 1.5 cm. distant, the pale glabrous spikelets in pairs, narrowly obovate, 2 mm. long.

Near the seashore, Province of Habana, Cuba, whence described (*Baker* 1824 being the type), and Isle of Pines.

**37. *Paspalum rigidifolium* Nash, Bull. N. Y. Bot. Gard. 1: 292. 1899.**

Perennial, the slender culms stiffly erect, the linear glabrous blades mostly aggregated toward the base, a prominent tuft of hairs borne just above the ligule.

Sandy open woods and savannas, Florida to Mississippi and in the Province of Pinar del Río (Chirigote), Cuba. Originally described from Florida.

**38. *Paspalum propinquum* Nash, Bull. N. Y. Bot. Gard. 1: 291. 1899.**

Tufted, the slender culms spreading or ascending, the flat thin but firm blades usually 5 to 6 mm. wide, strongly ciliate, otherwise glabrous or nearly so; racemes 1 or, on the terminal peduncle, sometimes 2, the pale, minutely pubescent or glabrous spikelets about 1.8 mm. long.

Open ground, fields and pastures, southeastern United States and the West Indies. Originally described from Florida. Grisebach<sup>1</sup> refers this species to *P. setaceum* Michx.

Bermuda, Cuba (Habana), Jamaica, and Porto Rico.

**39. *Paspalum ciliatifolium* Michx. Fl. Bor. Amer. 1: 44. 1803.**

Closely related to the preceding, the blades more lax, commonly wider.

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<sup>1</sup> Fl. Brit. W. Ind. 542. 1864.

Central and eastern United States and Province of Habana, Cuba. Originally described from Carolina.

40. *Paspalum debile* Michx. Fl. Bor. Amer. 1: 44. 1803.

Perennial, with a cluster of short leafy shoots at base, the blades flat, rather thin, pilose on both surfaces, conspicuously ciliate; culms slender, ascending; racemes 4 to 6 cm. long, usually 2 on the terminal culm, solitary on the axillary peduncles, the pale, minutely pubescent, broadly ovate spikelets 1.6 to 1.8 mm. long.

Open savannas and slopes, southeastern United States and in Cuba (Herradura, Hitchcock 471), the Cuba specimens less strongly pubescent than typical. Originally described from the Carolinas and Georgia.

A specimen collected in Inagua, Bahamas, in 1890, by A. S. Hitchcock is allied to the preceding, but at present we are unable to refer it to any known species. It seems to be nearest to *P. psammophilum* Nash, of the Middle Atlantic States, but the spikelets are narrower than in that species and the plant much smaller.

41. *Paspalum decumbens* Swartz, Prodr. Veg. Ind. Occ. 22. 1788.<sup>1</sup>

*Paspalum pedunculatum* Desv.; Poir. in Lam. Encycl. Suppl. 4: 315. 1816.

*Panicum decumbens* Roem. & Schult. Syst. Veg. 2: 429. 1817.

*Paspalum vaginiflorum* Steud. Syn. Pl. Glum. 1: 19. 1854.

*Dimorphostachys pedunculata* Fourn. Mex. Pl. 2: 15. 1886.

A freely branching decumbent perennial with slender compressed culms, velvety foliage, the flat blades 5 to 10 cm. long, 5 to 8 mm. wide, and solitary arcuate racemes usually 2 to 3 cm. long, borne on very slender peduncles, these commonly several from the upper sheaths; spikelets obovate, 1.5 mm. long, a small first glume present, the second glume about half the length of the fruit.

Shaded banks and wooded slopes, Central America and the West Indies and northern South America. *Paspalum decumbens* was described from Jamaica; *P. pedunculatum* and *P. vaginiflorum* from French Guiana.

Cuba (Province of Pinar del Río and Isle of Pines), Haiti, Jamaica, Porto Rico, and Trinidad.

42. *Paspalum nutans* Lam. Tabl. Encycl. 1: 175. 1791.

*Paspalum Lloydii* Nash, N. Amer. Fl. 17: 178. 1912.

Resembling the preceding, the culms longer, the foliage not velvety, the racemes sometimes 2 or 3, the spikelets 1.8 mm. long, the first glume wanting, the second nearly as long as the fruit.

Shady banks and a weed in fields, Costa Rica and the Lesser Antilles to South America. Originally described from Central America; *P. Lloydii* described from Dominica, Lloyd 590 being the type.

Guadeloupe, Dominica, Grenada, and Trinidad.

43. *Paspalum ciliiferum* (Nash) Hitchc. Contr. U. S. Nat. Herb. 12: 201. 1909.

*Dimorphostachys ciliifera* Nash in Small, Fl. Southeast. U. S. 78. 1903.

Tufted, the slender culms spreading or ascending; blades sparsely pubescent, rather thin, flat, usually 10 to 15 cm. long, 8 to 10 mm. wide; racemes 1 or 2, slightly curved, 5 to 10 cm. long, usually with a tuft of long white hairs at the base; spikelets about 2.8 mm. long, narrowly obovate, appressed-pubescent, the first glume truncate on the primary, acuminate on the secondary, spikelet.

Thickets and shaded banks, Florida and Cuba. Originally described from Florida.

44. *Paspalum paniculatum* L. Syst. Nat. ed. 10. 2: 855. 1759.

*Paspalum hemisphericum* Poir. in Lam. Encycl. 5: 31. 1804.

<sup>1</sup> *Paspalum decumbens* Rottb. 1778 is a nomen nudum.



*Panicum paniculatum* Kuntze, Rev. Gen. Pl. 3<sup>2</sup>: 363. 1898.

*Paspalum paniculatum minor* Scribn. in Millsp. Field Mus. Bot. 2: 24. 1900.

A weedy branching perennial, commonly a meter or more tall, the foliage harshly pubescent, the flat blades 20 to 30 cm. long, about 1.5 cm. wide; racemes very numerous, slender, crowded in an oblong panicle, the minute crowded sub-hemispheric spikelets pubescent. Exceedingly variable in size and in the amount of pubescence.

Savannas, open or partly shaded, mostly moist ground, Mexico and the West Indies to South America; common throughout the West Indies. Originally described from Jamaica, the variety also described from that island; *P. hemisphericum* described from Porto Rico.

**45. *Paspalum multicaule* Poir. in Lam. Encycl. Suppl. 4: 309. 1816.**

*Paspalum papillosum* Spreng. Nov. Prov. Hal. 47. 1819.

A low annual, profusely branching from the base and lower nodes, the sheaths and narrow linear blades pilose; racemes a pair at the summit of the culm (rarely solitary), divergent, slender, about 3 cm. long, the minute pale orbicular spikelets irregularly sprinkled with globular hairs, these often wanting on some of the spikelets but present on some on each plant.

Moist savannas and open ground, Cuba (Province of Pinar del Río), Trinidad, Brazil, and Bolivia. Both *P. multicaule* and *P. papillosum* originally described from Brazil.

**46. *Paspalum parviflorum* Rhode; Flügge, Monogr. Pasp. 98. 1810.**

A low annual with delicate, repeatedly branching culms, the sheaths and flat linear blades pilose with long spreading hairs; racemes 2 or 3, about 5 mm. distant, divergent, 10 to 18 mm. long, pilose in the axils, the very minute glabrous spikelets solitary.

Apparently a plant of open moist sand, described from Porto Rico but not since collected in any of the West Indies, our specimens being from Guiana and Brazil.

**47. *Paspalum clavuliferum* Wright, Anal. Acad. Cienc. Habana 8: 203. 1871.**

Perennial in small tufts with very slender, sparingly branching culms 25 to 40 cm. tall, pubescent flat linear erect blades, and a pair of slender arcuate racemes (sometimes a single one) 3 to 5 cm. long, the paired obovate, minutely pubescent spikelets 1.5 mm. long.

Open wet ground, Cuba (Zaza de Tunas and Cajalbana), Porto Rico (Campo Alegre, *Stevenson* 2454), and southern Mexico to South America. Originally described from Cuba, *Wright* 3444<sup>1</sup> being the type.

**48. *Paspalum orbiculatum* Poir. in Lam. Encycl. 5: 32. 1804.**

*Paspalum pusillum* Vent.; Flügge, Monogr. Pasp. 100. 1810.

*Paspalum lenormandi* Husn. Enum. Glum. 12. 1871.

A glabrous creeping perennial with ascending flowering branches 10 to 20 cm. tall, the delicate culms finally branching; blades flat, spreading, mostly 1.5 to 4 cm. long, 4 to 7 mm. wide; racemes 2 or 3, short-exserted, 4 to 5 mm. distant, 1 to 2 cm. long, the minute glabrous pale yellow suborbicular spikelets singly disposed.

Wet places, southern Mexico and the West Indies to South America. Originally described from Porto Rico; *P. pusillum* described from St. Thomas, and *P. lenormandi* from Martinique.

Haiti, Porto Rico, Dominica, Martinique, and Trinidad.

<sup>1</sup>Two other species, *P. caespitosum* and *P. poiiretii*, were also distributed under this number.

49. *Paspalum reptatum* sp. nov.

Perennial, caespitose; culms compressed, creeping, as much as 1 meter long, rooting at the nodes, bearing erect or ascending leafy, often fascicled branches, 10 to 30 cm. long; sheaths compressed, the lower mostly velvety-pubescent, the upper usually glabrous except for a puberulent band at the summit, this sometimes wanting, commonly loose and separating from the culm; ligule minute, membranaceous; blades flat, spreading, 3 to 10 cm. long, 2 to 5 mm. wide, rounded at the base, velvety-pubescent to glabrous; racemes 2 or 3, commonly overtopped by the upper leaf, 5 to 10 mm. apart on a slender flattened glabrous axis, divergent or somewhat reflexed, 1 to 3.5 cm. long; rachis pubescent at the naked base, otherwise glabrous, the midnerve raised into a prominent ridge between the two rows of spikelets; spikelets solitary, not imbricate, yellowish green, blotched with brown, pubescent, 1.5 to 1.7 mm. long, 1.2 mm. wide, obovate, blunt, the glumes and sterile lemma equal; fruit stramineous, very minutely roughened.

Type in the U. S. National Herbarium, no. 865563, collected in wet ground in savannas west of Manacas, Province of Santa Clara, Cuba, by Brother León and F. R. Cazanás, December 28, 1915 (no. 5850). Known only from the type collection.

This species is most nearly related to *Paspalum orbiculatum*, from which it is distinguished by its larger pubescent spikelets, as well as by its larger size, more or less pubescent foliage, and longer narrower blades.

50. *Paspalum conjugatum* Bergius, Act. Helv. Phys. Math. 7: 129. 1762.

An extensively creeping perennial with compressed culms, the suberect flowering branches sometimes 1 meter tall; blades flat, rather thin, up to 20 cm. long, commonly about 8 mm. wide; racemes a pair (rarely a third below), widely divaricate, usually arcuate, slender, commonly 10 to 12 cm. long, the pale yellow flattened imbricate spikelets about 1.5 mm. long, with scant long silky hairs around the margin.

Moist ground, Gulf States to South America; Tropics and Subtropics of both hemispheres; throughout the West Indies; one of the commonest grasses of moist savannas and ditch banks, forming extensive and close mats. Originally described from Dutch Guiana. This species is said by C. F. Baker and by Père Duss to be an excellent forage grass. Maza and Roig<sup>1</sup> state that it is eaten by cattle only when they are driven to it by hunger. The common name "sour-grass," given to this species by Grisebach, would indicate that it was unpalatable. In Cuba it is called "cañamazo" and "cañamazo hembro."

50a. *Paspalum conjugatum* pubescens Doell in Mart. Fl. Bras. 2<sup>3</sup>: 55. 1877.

On the average coarser than the preceding, the blades somewhat firmer, pubescent; spikelets 2 mm. long, the silky hairs more copious.

Moist savannas and banks, South America. In the West Indies found in Grenada only (*Broadway* in 1904). Originally described from Brazil.

*PASPALUM DILATATUM* Poir. In the herbarium of the New York Botanical Garden there is a specimen of this species from "lawn, Agr. Sta.," Bermuda (*Brown, Britton & Bisset* 2005). This is a tall grass with flat ovate ciliate spikelets, often cultivated in the Subtropics under the name of "water-grass."

51. *Paspalum fasciculatum* Willd. in Flügge, Monogr. Pasp. 69. 1810.

A large, extensively creeping perennial, the compressed culms as much as 1 cm. wide and several meters long, the bases forming a tangled mass, the erect flowering culms 1 to 2 meters tall; sheaths densely silky-ciliate, at least

<sup>1</sup>Est. Exp. Agron. Bol. 22: 57. 1914.

toward the summit; blades flat, 30 to 60 cm. long, commonly 2 cm. wide, the margins very scabrous; racemes 10 to 12 cm. long, numerous, aggregated in a fan-shaped panicle; spikelets 4 mm. long, 1.5 mm. wide, acuminate.

Stream banks and swamps, southern Mexico, Trinidad (St. Joseph), and Tobago to South America. Originally described from Brazil.

52. *Paspalum virgatum* L. Syst. Nat. ed. 10. 2: 855. 1759.

*Paspalum leucocheilum* Wright, Anal. Acad. Cienc. Habana 8: 203. 1871.

*Paspalum virgatum* var. *jacquinianum* Flügge, Monogr. Pasp. 190. 1810.

A robust perennial growing in large clumps, the erect culms commonly 2 meters tall, the lower sheaths nodulose in drying; blades commonly 50 cm. or more long, 1 to 2 cm. wide, flat, the margins very scabrous; racemes several to many, 5 to 12 cm. long, forming a panicle 20 to 40 cm. long, a tuft of long hairs in the axils, the dull purplish rachises often sparsely ciliate with long hairs; spikelets in pairs, crowded, grayish, becoming rusty brown at maturity, obovate, 3 mm. long, 2 mm. wide, silky-hairy around the margin of the glume and the summit of the sterile lemma. In Porto Rico this and other species of this group are called "cortedero" because of the cruel cutting edges of the blades.

Banks and slopes, mostly moist and swampy ground, Mexico and the West Indies to Argentina. Originally described from Jamaica. *Paspalum leucocheilum* was described from the Isle of Pines; *P. virgatum* var. *jacquinianum* from Caribbean islands. Throughout Cuba, Jamaica, Haiti, Santo Domingo, Porto Rico, Trinidad, and Tobago, and represented by specimens from Dominica, Martinique, St. Lucia, Grenada, and Barbados. Called "caguazo" in Cuba.

53. *Paspalum secans* sp. nov.

Perennial, glabrous, in large clumps, with numerous long-leaved sterile shoots, the strong erect simple culms commonly 1 to nearly 2 meters tall; sheaths mostly overlapping, commonly separating from the culm and becoming involute above, ciliate at the summit, the lower rather loose and papery; ligule about 1.5 mm. long, membranaceous, with a dense row of white hairs behind it; blades erect, as much as 1 meter long, firm, 5 to 10 mm. wide, tapering to a base narrower than the summit of the sheath, long-acuminate, flat but drying more or less involute, the margins very sharply serrulate; racemes 5 to 12 (rarely as many as 20), relatively slender, sometimes flexuous, spreading, 6 to 15 mm. long, pilose at the base, rather remote, the panicle loose and open; spikelets glabrous, mostly pale, in pairs, not so crowded as in *P. virgatum*, glabrous, 2.3 to 2.7 mm. long, 1.5 to 1.6 mm. wide, obovate-elliptic; fruit about 2.3 mm. long, pale, minutely roughened.

Type in the U. S. National Herbarium, no. 732740, collected on Monte Mesa, Porto Rico, October 17, 1913, by Agnes Chase (no. 6174). The name refers to the sharp-cutting leaf blades.

Open slopes and dryish savannas, affecting drier situations than the other allies of *P. virgatum*.

Most of the Cuba and Jamaica specimens are somewhat more robust, with racemes on the average more numerous (12 to 15), the spikelets slightly wider. This Jamaican form, together with a yellow-panicked form of *P. virgatum*, Grisebach<sup>1</sup> described as *P. virgatum* var. *stramineum*, differentiating it by "axis half as broad as the spikelets; glumes straw-colored or at length purplish-tawny, usually glabrous," and citing March, Jamaica, and Wulschlaegel, Antigua, and also referring to Trinius, Icones, plate 131. The March specimen in the Grisebach Herbarium is the form with glabrous spikelets and pale fruit, the Wulschlaegel specimen is *P. virgatum*. Trinius's plate 131 shows pubescent spike-

<sup>1</sup>Fl. Brit. W. Ind. 543. 1864.

lets and the description states that the fruit is dark, both these characters indicating *P. virgatum*. In any case Grisebach's varietal name would be, because of *P. stramineum* Nash, untenable for a species. *Paspalum secans* is based on the Porto Rico collections; the Jamaica form may possibly be distinct.

Hitchcock<sup>1</sup> refers this species to *P. virgatum schreberianum* Flüggé, described from South America, and Nash<sup>2</sup> to *P. schreberianum*. We have not seen Flüggé's specimen, but his description, "spikes about thirty, the rachis margin subpilose, spikelets glabrous," applies to our species only in the last character. Furthermore *P. secans* is not known from the continent, but from the West Indies only.

Bahamas (Inagua, New Providence), Cuba, Jamaica, Porto Rico (frequent throughout), St. Croix, and Antigua.

**54. *Paspalum millegrana* Schrad. in Schult. Mant. 2: 175. 1824.**

*Paspalum underwoodii* Nash, Bull. Torrey Club 30: 375. 1903.

In large strong-rooted clumps, commonly 1.5 meters tall; lower sheaths nodulose, much overlapping; blades partially conduplicate, narrower, stiffer, and more scabrous than those of *P. virgatum*, often finely pubescent on the upper surface; racemes usually numerous, rather aggregated, ascending, the glabrous paired crowded spikelets usually glaucous-purplish or lead color, 2 to 2.2 mm. long, obovate-suborbicular, sometimes almost obcordate and apiculate.

Open mostly moist grounds, Bahamas and the Greater Antilles to southern Brazil. Originally described from Brazil. The type specimen has not been examined, but this is the only Brazilian species known to us answering the description, the characters "obovate-orbicular, glabrous, densely imbricate" applying particularly well to the spikelets of this species. *Paspalum underwoodii* was described from Porto Rico, *Underwood & Griggs* 149 being the type.

Bahamas (New Providence), Cuba, Jamaica, Porto Rico (common throughout), Trinidad, and Tobago.

**55. *Paspalum densum* Poir. in Lam. Encycl. 5: 32. 1804.**

Like *Paspalum millegrana* in habit, the culms and sheaths more lush and in drying more strongly nodulose; racemes 4 to 6 cm. long, very numerous, aggregated into an elongate-pyramidal panicle, the rachises conspicuously pilose, the light brown, glabrous, densely crowded spikelets 1.8 to 2 mm. long, nearly as broad.

Wet savannas and open wet ground, West Indies, Panama, and Venezuela. Originally described from Porto Rico.

Cuba (Pinar del Río, and Hanámana), Jamaica (parishes of Clarendon and St. Catherine), Porto Rico (south and west of San Juan Bay), Guadeloupe, and western Trinidad.

**56. *Paspalum coryphaeum* Trin. Gram. Pan. 114. 1826.**

An erect branching nearly glabrous perennial, 1 to 2 meters tall, the long flat blades purplish-glaucous, especially beneath; racemes numerous, ascending or finally arching, 5 to 10 cm. long, somewhat aggregated; rachis very slender with a long tuft of hairs at the base, the light brown elliptic crowded spikelets about 2 mm. long, the glume villous, the sterile lemma glabrous or obscurely pubescent toward the apex; panicles of the branches much smaller than the primary ones.

Savannas, western Trinidad to Brazil. Originally described from Brazil.

<sup>1</sup> Contr. U. S. Nat. Herb. 12: 206. 1909.

<sup>2</sup> Fl. N. Amer. 17: 190. 1912.

57. *Paspalum unispicatum* (Scribn. & Merr.) Nash, N. Amer. Fl. 17: 193. 1912.  
*Panicum (Dimorphostachys) unispicatum* Scribn. & Merr. U. S. Dept. Agr.  
 Div. Agrost. Bull. 24: 14. 1901.

Perennial from hard scaly rhizomes, the ascending, sparingly branching culms 18 to 45 cm. tall; blades flat, 8 to 25 cm. long, 6 to 8 mm. wide, pilose on the upper surface at the base and commonly with a few scattered hairs near the margin; racemes 1 or 2, erect or suberect, 5 to 9 cm. long, the rachis 1 mm. wide; spikelets in pairs, closely imbricate, pale greenish stramineous, glabrous, obovate, subacute, 2.6 to 3 mm. long, 1.5 mm. wide; first glume of the upper pair of spikelets flat, nerveless or faintly nerved, one-third to two-thirds as long as the spikelet, that of the lower carinate, two-thirds to three-fourths as long as the spikelet.

Open slopes and dry ground, southern Texas and Cuba (valley of the Río Zaza and near Habana) to Venezuela. Originally described from Oaxaca.

58. *Paspalum pilosum* Lam. Tabl. Encycl. 1: 175. 1791.

*Panicum monostachyum* H. B. K. Nov. Gen. & Sp. 1: 96. 1816.

Similar to the preceding, stoloniferous rather than rhizomatous, the culms more compressed, the foliage harshly pubescent; racemes solitary, commonly 10 to 15 cm. long, erect-arcuate, the rachis rarely sparsely pilose; spikelets blunter, the first glume usually less developed.

Savannas and dryish open ground, Costa Rica to Trinidad and Brazil. Originally described from tropical America; *Panicum monostachyum* described from Venezuela. The name *P. pilosum* is here tentatively applied. It may belong to *Panicum monobotrys* Trin., in which the rachis is more frequently pilose.

59. *Paspalum pulchellum* Kunth, Mém. Mus. Par. 2: 68. 1815.

*Reimaria elegans* Humb. & Bonpl.; Flügge, Monogr. Pasp. 216. 1810, not *Paspalum elegans* Flügge, op. cit. 183.

Perennial, in dense tufts, the slender simple culms 30 to 75 cm. tall, the pilose linear subinvolute blades clustered at the base, the culm sheaths bladeless or nearly so; racemes 2 or 3, approximate, spreading, 2 to 6 cm. long, the solitary glabrous oval spikelets about 1.8 mm. long; both glumes wanting, the sterile lemma tinged with red, sometimes dark crimson; fruit pale, smooth and shining.

Savannas, West Indies and northern South America. Originally described from Venezuela, the two names given above based on the same collection.

Cuba, Santo Domingo, and Trinidad.

60. *Paspalum saccharoides* Nees in Trin. Gram. Icon. 1: pl. 107. 1828.

*Saccharum polystachyum* Swartz, Prodr. Veg. Ind. Occ. 21. 1788, not *Paspalum polystachyum* R. Br. 1810.

*Panicum saccharoides* Kunth, Rév. Gram. 1: 237. pl. 30. 1830.

*Moenchia speciosa* Wender.; Steud. Nom. Bot. ed. 2: 2: 153. 1841.

*Tricholacna saccharoides* Griseb. Syst. Unt. Veg. Karib. 117. 1857.

*Syllepis polystachya* Fourn. in Hack. in Mart. Fl. Bras. 2<sup>o</sup>: 251. 1883, as synonym of *Imperata caudata*; Fourn. Mex. Pl. 2: 52. 1886, the name based on *Saccharum polystachyum* Swartz, but misapplied to a species of *Imperata*.

*Paspalum polystachyum* Kuntze, Rev. Gen. Pl. 2: 786. 1891, not R. Br. 1810.

A robust tufted stoloniferous perennial, the branching culms often 2 meters tall, the overlapping sheaths ciliate, the long flat blades 1 to 1.5 cm. wide, involute toward the apex, pale and appressed-pubescent on the upper surface; racemes numerous, commonly 15 cm. or more long, slender, drooping, forming

a feathery panicle, the small narrow spikelets margined with silky white hairs 6 to 8 mm. long, the general appearance unlike that of any other species of *Paspalum*.

Banks and steep slopes, Costa Rica and the Lesser Antilles to northern South America. Originally described from St. Christopher. *Paspalum saccharoides* was described from the West Indies. *Moenchia speciosa* was based on *Panicum saccharoides*.

Guadeloupe, Dominica, Martinique, Grenada, Trinidad, and Tobago.

### 36. PANICUM L.

Inflorescence paniculate (rarely racemose); spikelets pedicellate, biconvex; first glume present; sterile lemma usually inclosing a hyaline palea, sometimes a staminate flower; fruit chartaceous-indurate, the margins of the lemma inrolled.

The North American species of this genus have been described in two earlier papers<sup>1</sup> in which a detailed citation of specimens is given. In the present paper there is given only a résumé collated from these two papers.

Axis of branchlets produced beyond the base of the uppermost spikelet as a point or bristle 1 to 6 mm. long. (Subgenus PAUROCHAETIUM.)

First glume rounded or truncate; second glume about as long as fruit.

3. *P. chapmani*.

First glume acute; second glume about two-thirds as long as fruit.

Spikelets 1.5 mm. long; blades involute-----1. *P. distantiflorum*.

Spikelets 2 mm. long; blades flat-----2. *P. utowanaeum*.

Axis of branchlets not produced into a bristle. (In *P. geminatum* the somewhat flattened axis pointed but not bristle-form.)

Basal leaves usually distinctly different from those of the culm, forming a winter rosette; culms at first simple, the spikelets of the primary panicle not perfecting seed, later usually becoming much branched, the small secondary panicles with cleistogamous fruitful spikelets. Mostly delicate grasses with small open primary panicles (narrow in *P. ncuranthum* and *P. caerulescens*), the small elliptical or obovate, obtuse spikelets (pointed in *P. fusiforme*) on capillary, often flexuous pedicels. (Subgenus DICHANTHELIUM.)

Foliage soft and lax, the flat blades prominently ciliate; plants branching from the base, finally forming rosettes or cushions. (LAXIFLORA.)

Spikelets papillose-pilose; sheaths retrorsely pilose----50. *P. xalapense*.

Spikelets glabrous; sheaths not retrorsely pilose.

Blades glabrous on the surface-----51. *P. polycaulon*.

Blades pilose on the surface-----52. *P. strigosum*.

Foliage not soft and lax; plants branching from the culm nodes.

Spikelets glabrous; plants glabrous throughout; autumnal phase erect, not bushy-branching. (DICHOTOMA in part.)

Plants delicate, tufted, not over 25 cm. tall; spikelets 1.2 mm. long.

67. *P. chamaelonche*.

Plants slender but not delicate, usually at least 50 cm. tall; spikelets 1.6 mm. long or more.

Spikelets not over 1.6 mm. long; panicles narrow; plants glaucous bluish green-----60. *P. caerulescens*.

Spikelets 2 mm. or more long; panicles open----60. *P. roanakense*.

<sup>1</sup> Contr. U. S. Nat. Herb. 15: 1910; 17: 459-539. 1915.

## Spikelets pubescent.

Spikelets attenuate at base, mostly prominently pustulose; blades narrow, stiff, strongly nerved, tapering from base to apex. (ANGUSTIFOLIA.)

Nodes bearded; plants grayish-villous; autumnal blades flat, rather soft -----54. *P. chrysopsidifolium*.

Nodes not bearded; plants villous only at base, or nearly glabrous; autumnal blades involute.

Spikelets 3 to 3.5 mm. long, pointed-----55. *P. fusiforme*.

Spikelets less than 3 mm. long, not pointed or obscurely so.

Plants glabrous or nearly so; autumnal culms erect; spikelets subsecund along the suberect panicle branches.

57. *P. neuranthum*.

Plants pubescent, at least on the lower half.

Spikelets not over 2 mm. long; vernal blades 4 to 6 cm. long; autumnal blades much crowded, falcate-----53. *P. aciculare*.

Spikelets 2.2 to 2.4 mm. long; vernal blades 7 to 12 cm. long; autumnal blades not falcate-----56. *P. arenicoloides*.

Spikelets not attenuate at base, not pustulose; blades lanceolate to linear-lanceolate but usually less than 10 times as long as broad. Sheaths glabrous.

Spikelets subglobose or pyriform.

Blades erect, 7 to 13 cm. long, 7 to 14 mm. wide; spikelets spheroid -----65. *P. erectifolium*.

Blades spreading, rarely over 5 cm. long and 5 mm. wide; spikelets pyriform; autumnal form bushy-branching. (LANCEARIA.)

Spikelets 1.5 to 1.6 mm. long-----68. *P. portoricense*.

Spikelets 2 mm. long-----69. *P. lancearium*.

Spikelets elliptic to obovate.

Nodes glabrous.

Spikelets 2.8 to 3 mm. long; blades commonly 1 cm. wide, not white-margined -----72. *P. jorii*.

Spikelets not over 1.5 mm. long; blades not over 6 mm. wide, with a cartilaginous white margin.

66. *P. albomarginatum*.

Nodes bearded; blades not white-margined; spikelets 2 mm. long.

Sheaths, at least the upper, viscid-spotted; autumnal phase erect or reclining-----58. *P. nitidum*.

Sheaths not viscid-spotted; autumnal phase decumbent, with flabellate-fascicled branches-----59. *P. multirameum*.

Sheaths pubescent.

Culms usually 75 cm. or more tall; foliage velvety-pubescent.

Vernal culms erect or ascending; plants velvety throughout; spikelets about 2.5 mm. long-----70. *P. scoparium*.

Vernal culms decumbent at base; upper sheaths more or less glabrate; spikelets less than 2 mm. long--71. *P. viscidellum*.

Culms not over 50 cm. tall.

Plants conspicuously villous throughout----64. *P. acuminatum*.

Plants appressed-pubescent on the culms and sheaths; blades glabrous above.

Spikelets 1.2 to 1.3 mm. long-----62. *P. leucothrix*.

Spikelets not over 1 mm. long-----63. *P. wrightianum*.

Basal leaves similar to culm leaves, not forming a winter rosette; spikelets all fertile.

Spikelets plano-gibbous, the second glume swollen, bristly and burlike at maturity; first glume nearly as long as the minute spikelet; Trinidad.

75. *P. hirtum*.

Spikelets not plano-gibbous nor burlike.

Fruit transversely rugose.

Plants perennial.

Spikelets relatively long-pediceled in a large open panicle.

20. *P. maximum*.

Spikelets sessile along the racemes or raceme-like branches of the panicle.

Nodes bearded; inflorescence of numerous long subfasciculate ascending racemes -----5. *P. barbinode*.

Nodes glabrous; inflorescence of several short erect racemes.

4. *P. geminatum*.

Plants annual. (FASCICULATA.)

Spikelets glabrous.

Spikelets not over 2 mm. long, not reticulate-veined--6. *P. reptans*.

Spikelets 2 to 3 mm. long, strongly reticulate-veined.

7. *P. fasciculatum*.

Spikelets pubescent.

Plants velvety; rachis pilose -----8. *P. molle*.

Plants glabrous as a whole; rachis scabrous only.

9. *P. adpersum*.

Fruit not transversely rugose (minutely papillose-roughened in *P. millegrana*).

Plants annual.

Spikelets pubescent, 1.2 to 1.3 mm. long, long-pediceled in an open delicate panicle; blades ovate-lanceolate-----41. *P. trichoides*.

Spikelets glabrous, 2 mm. long or more; blades linear or linear-lanceolate.

First glume not over one-fourth the length of the spikelet, truncate or triangular-tipped. (DICHOTOMIFLORA in part.)

Sheaths glabrous -----10. *P. dichotomiflorum*.

Sheaths papillose-hispid-----11. *P. bartowense*.

First glume usually as much as half the length of the spikelet, acute or acuminate. (CAPILLARIA.)

Inflorescence elongate, composed of several approximate implicate panicles-----16. *P. cayennense*.

Inflorescence not composed of approximate nor implicate panicles.

Panicles more than half the length of the entire plant; spikelets 2 to 2.2 mm. long-----14. *P. capillare*.

Panicles not more than one-third the length of the entire plant; spikelets 3 to 3.3 mm. long-----15. *P. hirticaule*.

Plants perennial.

Spikelets short-pediceled along one side of the panicle branches, forming more or less spikelike racemes.

Second glume inflated-gibbous, pubescent-----45. *P. ineptum*.

Second glume not inflated-gibbous.

Blades lanceolate or ovate-lanceolate. (STOLONIFERA.)



- Spikelets hispid and with 2 crateriform glands on the sterile lemma ----- 39. *P. pulchellum*.  
 Spikelets glabrous, glandless; second glume and sterile lemma boat-shaped.  
 Blades not over 5 cm., usually 2 or 3 cm., long; second glume rather blunt and shorter than the sterile lemma.  
 37. *P. stoloniferum*.  
 Blades 5 to 11 cm. long; second glume acute, nearly equaling the sterile lemma ----- 38. *P. frondescens*.  
 Blades linear, often elongate; spikelets glabrous. (LAXA in part.)  
 Spikelets not expanded at maturity by an enlarged sterile palea, pointed; nodes densely pubescent.  
 30. *P. polygonatum*.  
 Spikelets more or less expanded at maturity by the enlarged sterile palea, mostly blunt.  
 Blades narrowed toward the base ----- 34. *P. laxum*.  
 Blades cordate or truncate at the base.  
 Spikelets 2 mm. long; panicle branches erect or nearly so.  
 35. *P. stevensianum*.  
 Spikelets not over 1.6 mm. long, usually less; panicle branches spreading or ascending.  
 Panicles one-third to half as wide as long; spikelets not conspicuously secund, somewhat irregularly disposed; blades cordate-clasping --- 33. *P. boliviense*.  
 Panicles rarely one-fourth as wide as long; spikelets conspicuously secund and regularly disposed.  
 Culms as much as 2 meters long; panicles 25 to 30 cm. long; Trinidad ----- 31. *P. milleflorum*.  
 Culms not over 1 meter long; panicles 5 to 15 cm. long.  
 32. *P. pilosum*.  
 Spikelets in open or sometimes (AGROSTOIDIA, TENERA) in contracted or congested panicles, but not in 1-sided spike-like racemes.  
 Sterile palea enlarged and indurate at maturity, expanding the minute spikelets; spikelets clustered along the ends of the branches ----- 36. *P. exiguidorum*.  
 Sterile palea if present not enlarged.  
 Fruit sparsely silky-pubescent; first glume very small, not over one-fourth the length of the small obovate blunt glabrous spikelets ----- 40. *P. schiffneri*.  
 Fruit glabrous; first glume usually more than one-third the length of the spikelet, if shorter the spikelets not obovate nor blunt.  
 First glume short, blunt; spikelets pointed; base of culm usually decumbent, rooting at the nodes. (DICHOTOMIFLORA in part.)  
 Fruit not acuminate; panicles rarely over 18 cm. long.  
 12. *P. aquaticum*.  
 Fruit acuminate; panicles often 40 cm. long; culms succulent; aquatic ----- 13. *P. elephantipes*.  
 First glume usually more than one-third the length of the spikelet.  
 Plants forming conspicuous hard creeping scaly rhizomes. (VIRGATA.)

Spikelets not over 2.5 mm. long; first glume less than half the length of the spikelet-----21. *P. repens*.

Spikelets 3 to 7 mm. long (sometimes less than 3 mm. in *P. virgatum cubense*); first glume more than half the length of the spikelet.

Culms decumbent or creeping at base; spikelets 3.2 to 4 mm. long; plants reedlike, as much as 4 meters tall, gregarious; Trinidad and Tobago----23. *P. altum*.

Culms erect; plants less than 2 meters tall, not gregarious.

Spikelets 4.3 to 5.5 mm. long, beaked.

24. *P. amarulum*.

Spikelets not over 3.2 mm. long, not beaked.

22. *P. virgatum cubense*.

Plants not forming creeping scaly rhizomes.

Fruit crested at the apex; spikelets 5.5 to 6 mm. long; plants decumbent at base, forming a tangled mass.

74. *P. zizanioides*.

Fruit not crested.

Panicles narrow and few-flowered; culms erect and wiry; blades drying involute. (TENERA.)

Second glume and sterile lemma exceeding the fruit; spikelets pointed-----25. *P. tenerum*.

Second glume and sterile lemma not exceeding the fruit; spikelets rather blunt.

Pedicels bearing long stiff erect hairs at the summit; Trinidad-----27. *P. caricoides*.

Pedicels not hairy.

Spikelets attenuate at base, about 2 mm. long; leaves more or less pilose; Trinidad.

26. *P. stenodoides*.

Spikelets not attenuate at base, about 1.5 mm. long; leaves glabrous-----28. *P. stenodes*.

Panicles open or contracted, many-flowered.

Panicles 40 to 60 cm. long, the numerous elongate branches in verticils-----49. *P. megiston*.

Panicles mostly much less than 40 cm. long, the branches not verticillate.

Spikelets short-pediceled along the nearly simple panicle branches.

Plants stoloniferous, aquatic or subaquatic; culms decumbent at base; Trinidad--73. *P. grande*.

Plants not stoloniferous; culms erect.

29. *P. condensum*.

Spikelets long-pediceled; panicle open at maturity.

First glume not pointed, two-thirds the length of the spikelet or more; spikelets blunt.

Panicles not over 6 cm. long; plants somewhat glaucous, relatively small. (PARVIFOLIA.)

Culms very slender, decumbent or creeping; blades 1 to 3 cm. long.

43. *P. parvifolium*.

Culms firm, erect or decumbent at base only;  
blades 3 to 8 cm. long; Trinidad.

44. *P. cyanescens*.

Panicles 10 to 20 cm. long, very diffuse; plants  
tall, not glaucous, decumbent at base.

Spikelets viscid, 3 mm. long.

47. *P. glutinosum*.

Spikelets not viscid, 2 to 2.3 mm. long.

46. *P. millegrana*.

First glume pointed, usually less than two-thirds  
as long as the pointed spikelets.

Spikelets not over 1.4 mm. long, pubescent;  
panicle large, diffuse; culms straggling.

42. *P. trichanthum*.

Spikelets 2 to 3.5 mm. long.

Spikelets sparsely hispid; culms stout, woody.

48. *P. rudgel*.

Spikelets glabrous. (DIFFUSA.)

Culms as much as 1 cm. thick; blades 2 cm.  
or more wide-----19. *P. hirsutum*.

Culms slender; blades not over 1 cm. wide.

Blades 1 to 3 mm. wide; spikelets 2 to 2.5  
mm. long; culms glabrous; sheaths  
glabrous or nearly so; plants spread-  
ing or ascending---17. *P. diffusum*.

Blades mostly about 1 cm. wide; spikelets  
3 mm. long; culms and sheaths hir-  
sute; plants mostly erect.

18. *P. ghiesbreghtii*.

Subgenus **PAUROCHAETIUM** Hitchc. & Chase.

1. *Panicum distantiflorum* A. Rich. in Sagra, Hist. Cuba 11: 304. 1850.

Limestone hills at low altitudes, Bahamas to Cuba and Haiti, and in Curaçao.  
Originally described from Cuba.

2. *Panicum utowanæum* Scribn. in Millsp. Field Mus. Bot. 2: 25. 1900.

Open rocky soil, mostly near the coast, Cuba, Porto Rico, Guadeloupe, and  
Venezuela. Originally described from Porto Rico.

3. *Panicum chapmani* Vasey, Bull. Torrey Club 11: 61. 1884.

Coral sand and shell mounds, southern Florida and the Bahamas. Originally  
described from Florida.

**TRUE PANICUM.**

4. *Panicum geminatum* Forsk. Fl. Aegypt. Arab. 18. 1775.

Moist ground, ditches, and swamps, mostly near the coast, tropical regions of  
both hemispheres, in America extending north into southern Florida and  
Texas; throughout the West Indies. Originally described from Rosetta, Egypt.

5. *Panicum barbinode* Trin. Mém. Acad. St. Pétersb. VI. Sci. Nat. 1: 256. 1834.

PARA GRASS.

Cultivated and waste ground, especially in moist places, tropical America,  
extending into southern Florida and Texas; introduced in the warmer parts  
of the Old World. Originally described from Bahia, Brazil. A valuable forage

grass in the Tropics at low altitudes, used for pasture and for cut green feed. In common with *Eriochloa subglabra* called "malojilla" (see p. 299) in Porto Rico; in Cuba called "hierba del Paral," "hierba bruja," and "paraná;" in the English islands called "Dutch grass" and "Scotch grass."

6. *Panicum reptans* L. Syst. Nat. ed. 10. 2: 870. 1759.

Open ground, at low altitudes, especially near the coast, frequently a weed in waste places and cultivated soil. Gulf Coast of the United States and Atlantic slope of Mexico, throughout the West Indies to northern South America; also introduced in the warm regions of the Eastern Hemisphere. Originally described from Jamaica. In Cuba called "San Juan de Castillo."

7. *Panicum fasciculatum* Swartz, Prodr. Veg. Ind. Occ. 22. 1788.

Moist open ground, often a weed in fields and waste places, southern Florida and Texas, Mexico, and throughout the West Indies to central South America. Originally described from Jamaica. In Cuba called "súrbana."

8. *Panicum molle* Swartz, Prodr. Veg. Ind. Occ. 22. 1788.

Open ground, often a weed in fields, Cuba, Jamaica, Mexico, and Central America to Argentina. In Cuba called "súrbana." The type from the West Indies, probably Jamaica. This species was referred by Grisebach<sup>1</sup> to *Panicum carthaginense*.

9. *Panicum adpersum* Trin. Gram. Pan. 146. 1826.

Moist open ground, Florida and throughout the West Indies. Originally described from Santo Domingo.

10. *Panicum dichotomiflorum* Michx. Fl. Bor. Amer. 1: 48. 1803.

Moist ground along streams and a weed in waste places and in cultivated soil, United States, Bermuda, Bahamas, Cuba, and Guadeloupe; also in Panama. Originally described from the United States.

11. *Panicum bartowense* Scribn. & Merr. U. S. Dept. Agr. Div. Agrost. Circ. 35: 3. 1901.

Low ground, often growing in shallow water, Florida, Bahamas, Cuba, and Jamaica. Originally described from Florida.

12. *Panicum aquaticum* Poir. in Lam. Encycl. Suppl. 4: 281. 1816.

Wet places or in shallow water, margins of streams and ponds, mostly at low altitudes, Cuba, Porto Rico, and Trinidad, and Mexico to Paraguay.

13. *Panicum elephantipes* Nees, Agrost. Bras. 165. 1829.

In ponds and shallow water at low altitudes, Cuba, Jamaica, and Porto Rico, and from Guatemala south to Argentina. Originally described from Brazil.

14. *Panicum capillare* L. Sp. Pl. 58. 1753.

Open ground, common in the eastern United States, introduced in Bermuda. Originally described from Virginia.

*PANICUM MILIACEUM* L. (HOG MILLET, BROOMCORN MILLET), introduced from the Old World and escaped from cultivation in the United States, has been found in Porto Rico (*Stevenson* 3052) and St. Croix (*Benson* in Copenhagen Herb.).

15. *Panicum hirticaule* Presl, Rel. Haenk. 1: 308. 1830.

Rocky or sandy soil, southwestern United States and south to South America; also in Haiti. Originally described from Mexico.

16. *Panicum cayennense* Lam. Tabl. Encycl. 1: 173. 1791.

Open ground and pine woods, Cuba, Jamaica, and Costa Rica to Brazil. Originally described from French Guiana.

<sup>1</sup> Fl. Brit. W. Ind. 546. 1864.

17. *Panicum diffusum* Swartz, Prodr. Veg. Ind. Occ. 23. 1788.

Banks, open slopes, and savannas throughout the West Indies. Originally described from Jamaica or Hispaniola.

18. *Panicum ghiesbreghtii* Fourn. Mex. Pl. 2: 29. 1886.

Low moist ground, Mexico to South America and throughout the West Indies, though no specimens are reported from Hispaniola.

19. *Panicum hirsutum* Swartz, Fl. Ind. Occ. 1: 173. 1797.

Open moist ground, Cuba, Jamaica, Guadeloupe, Martinique, and Trinidad, and from central Mexico to South America. Originally described from Jamaica.

20. *Panicum maximum* Jacq. Coll. Bot. 1: 76. 1786. GUINEA GRASS.

Open ground, at low altitudes, escaped from cultivation, southern Florida, through Mexico and the West Indies to South America; a native of Africa and now widespread in the warmer parts of the Old World. An important forage grass throughout the Tropics of the world at low altitudes. Used for pasture, or cut and fed green. In Cuba called "hierba Guinea." Originally described from Guadeloupe.

21. *Panicum repens* L. Sp. Pl. ed. 2. 1: 87. 1762.

Sea beaches, warmer regions of both hemispheres; in America from Alabama to Brazil. In the West Indies known only from Cuba. Originally described from the Old World.

22. *Panicum virgatum cubense* Griseb. Cat. Pl. Cub. 233. 1866.

Pine woods, Atlantic Coastal Plain, Bermuda, and Cuba. Originally described from Cuba.

23. *Panicum altum* Hitchc. & Chase, Contr. U. S. Nat. Herb. 17: 488. f. 57. 1915.

Sandy marshes or flats near the seacoast, British Honduras to Trinidad and Tobago. Originally described from Panama.

24. *Panicum amarulum* Hitchc. & Chase, Contr. U. S. Nat. Herb. 15: 96. f. 87. 1910.

Sandy seashores and coast dunes, southeastern United States, Bahamas, and Cuba. Originally described from Virginia.

25. *Panicum tenerum* Beyr. in Trin. Mém. Acad. St. Pétersb. VI. Sci. Nat. 1: 341. 1834.

Margins of sandy swamps and ponds and in wet places in sandy woods, southeastern United States, Cuba, and Porto Rico. Originally described from Georgia.

26. *Panicum stenodoides* Hubbard, Proc. Amer. Acad. 49: 497. 1913.

Open grass land and moist savannas, Central America, Trinidad, and northern South America. Originally described from British Honduras.

27. *Panicum caricoides* Nees; Trin. Gram. Pan. 149. 1826.

Wet savannas, Trinidad to Brazil; also the Isle of Pines. Originally described from Brazil.

28. *Panicum stenodes* Griseb. Fl. Brit. W. Ind. 547. 1864.

Borders of ponds and wet savannas, Greater Antilles and Costa Rica to Brazil. Originally described from Jamaica.

29. *Panicum condensum* Nash in Small, Fl. Southeast. U. S. 93. 1903.

Swamps and borders of ponds and streams, southeastern United States, south into Mexico, and in the West Indies in the Bahamas, Cuba, Jamaica, and Porto Rico. Originally described from Florida.

30. *Panicum polygonatum* Schrad. in Schult. Mant. 2: 256. 1824.  
Swamps and moist soil, Trinidad and Tobago, and from Mexico to Paraguay. Originally described from Brazil.
31. *Panicum milleflorum* Hitchc. & Chase, Contr. U. S. Nat. Herb. 17: 494. f. 70. 1915.  
Swamps, Panama to Trinidad. Originally described from Panama.
32. *Panicum pilosum* Swartz, Prodr. Veg. Ind. Occ. 22. 1788.  
Moist ground, ditches, and swamps, Mexico and throughout the West Indies, except Santo Domingo and Porto Rico, to Paraguay. Originally described from Jamaica.
33. *Panicum boliviense* Hack. Repert. Nov. Sp. Fedde 11: 19. 1912.  
Ditches, banks of streams, moist open or wooded ground, southern Mexico and Cuba to Paraguay. Originally described from Bolivia.
34. *Panicum laxum* Swartz, Prodr. Veg. Ind. Occ. 23. 1788.  
Ditches, banks, moist woods, and wet savannas, Mexico and throughout the West Indies to Paraguay. Originally described from Jamaica.
35. *Panicum stevensianum* Hitchc. & Chase, Contr. U. S. Nat. Herb. 17: 498. f. 76. 1915.  
Wet sand along ponds, Cuba and Porto Rico. Originally described from Porto Rico.
36. *Panicum exiguiflorum* Griseb. Cat. Pl. Cub. 234. 1866.  
Savannas and moist sandy woods, Bahamas and Cuba. Originally described from Cuba.
37. *Panicum stoloniferum* Poir. in Lam. Encycl. Suppl. 4: 274. 1816.  
Moist shady places, Guatemala to Brazil and in Trinidad. Originally described from Cayenne.
38. *Panicum frondescens* Meyer, Prim. Fl. Esseq. 56. 1818.  
Moist woods, Mexico to Trinidad and Brazil. Originally described from British Guiana.
39. *Panicum pulchellum* Raddi, Agrost. Bras. 42. 1823.  
Moist shady places, southern Mexico and the Windward Islands to Brazil. Originally described from Rio de Janeiro.
40. *Panicum schiffneri* Hack. Ergeb. Bot. Exped. Akad. Wiss. Südbras. 11. 1906.  
Wet shady banks and slopes, Porto Rico, Martinique, and St. Vincent, and from southern Mexico to southern Brazil. Originally described from Brazil.
41. *Panicum trichoides* Swartz, Prodr. Veg. Ind. Occ. 24. 1788. ILUSTÓN.  
Damp shady places, often a weed in fields and groves, throughout the West Indies and in tropical America generally. Originally described from Jamaica.
42. *Panicum trichanthum* Nees, Agrost. Bras. 210. 1829.  
Moist thickets and river banks, Mexico, and Cuba, Jamaica, Porto Rico, and Trinidad, to Paraguay. Originally described from Mexico.
43. *Panicum parvifolium* Lam. Tabl. Encycl. 1: 173. 1791.  
Wet savannas and margins of ponds and streams. Cuba, Jamaica, Porto Rico, and Trinidad, and from Costa Rica to Paraguay. Originally described from tropical America.
44. *Panicum cyanescens* Nees, Agrost. Bras. 220. 1829.  
Swamps and wet savannas, British Honduras, Isle of Pines (*Britton, Britton & Wilson 14748*), and Trinidad to Brazil. Originally described from Brazil.

45. *Panicum ineptum* Hitchc. & Chase, Contr. U. S. Nat. Herb. 17: 509. f. 98. 1915.

Known only from the type specimen collected in Santo Domingo.

46. *Panicum millegrana* Poir. in Lam. Encycl. Suppl. 4: 278. 1816.

Damp woods and shady banks, Mexico, Cuba, and Trinidad to Paraguay. Originally described from tropical America, probably from Cayenne.

47. *Panicum glutinosum* Swartz, Prodr. Veg. Ind. Occ. 24. 1788.

Mountain woods, Mexico, Cuba, Jamaica, Haiti, Santo Domingo, and Porto Rico, to South America. Originally described from Jamaica. Called "bur-grass" and "ginger grass."

48. *Panicum rudgei* Roem. & Schult. Syst. Veg. 2: 444. 1817.

Savannas, Jamaica and British Honduras to Trinidad and Brazil. Originally described from British Guiana.

49. *Panicum megiston* Schult. Mant. 2: 248. 1824.

Swamps, Mexico, Cuba, and Trinidad to Paraguay. Originally described from British Guiana.

*Panicum trigonum* Retz. of the East Indies has been found in a shaded situation at Port of Spain, Trinidad.

Subgenus *DICHANTHELIUM* Hitchc. & Chase.

50. *Panicum xalapense* H. B. K. Nov. Gen. & Sp. 1: 103. 1816.

Moist banks and rich woods, southeastern United States to Guatemala; also in Santo Domingo. Originally described from Jalapa, Mexico.

51. *Panicum polycaulon* Nash, Bull. Torrey Club 24: 200. 1897.

Open moist woods and savannas, Florida, Cuba, Jamaica, and Porto Rico. Originally described from Florida.

52. *Panicum strigosum* Muhl. in Ell. Bot. S. C. & Ga. 1: 126. 1816.

Sandy woods and open moist ground, southeastern United States to Colombia, and in Cuba, Jamaica, and Santo Domingo. Originally described from South Carolina or Georgia.

53. *Panicum aciculare* Desv.; Poir. in Lam. Encycl. Suppl. 4: 274. 1816.

Grassy slopes and sandy woods, southeastern United States, Cuba, and Porto Rico. The type specimen probably from Porto Rico.

54. *Panicum chrysopsidifolium* Nash in Small, Fl. Southeast. U. S. 100. 1903.

Sandy woods and open moist ground, Florida and Louisiana, and in Cuba, Jamaica, Haiti, Santo Domingo, and Porto Rico. Originally described from Florida.

55. *Panicum fusiforme* Hitchc. Contr. U. S. Nat. Herb. 12: 222. 1909.

Sandy pine woods and open moist ground, Florida, Cuba, Jamaica, and British Honduras. Originally described from Cuba.

56. *Panicum arenicoloides* Ashe, Journ. Elisha Mitchell Soc. 16: 89. 1900.

Sandy pine woods, southeastern United States; also in Guatemala and Cuba (Isle of Pines, Britton & Wilson 14305).

57. *Panicum neuranthum* Griseb. Cat. Pl. Cub. 232. 1866.

Moist savannas, Florida and Cuba. Originally described from Cuba.

58. *Panicum nitidum* Lam. Tabl. Encycl. 1: 172. 1791.

Moist ground and wooded swamps, southeastern United States, Bahamas, and Cuba. Originally described from [South?] Carolina.

59. *Panicum multirameum* Scribn. U. S. Dept. Agr. Div. Agrost. Circ. 19: 2. 1900.

Banks and dry open ground, southern Mexico to Guatemala; also in Jamaica. Originally described from Jalapa, Mexico.

60. *Panicum roanokense* Ashe, Journ. Elisha Mitchell Soc. 15: 44. 1898.

Open swampy woods and wet meadows, Virginia to Texas; also in Jamaica. Originally described from North Carolina.

61. *Panicum caerulescens* Hack.; Hitchc. Contr. U. S. Nat. Herb. 12: 219. 1909.

Marshes and swampy woods, southeastern United States, Bahamas, and Cuba. Originally described from Florida.

62. *Panicum leucothrix* Nash, Bull. Torrey Club 24: 41. 1897.

Pine woods and moist open ground, southeastern United States, Cuba, and Porto Rico. Originally described from Florida.

63. *Panicum wrightianum* Scribn. U. S. Dept. Agr. Div. Agrost. Bull. 11: 44. f. 4. 1898.

Moist sandy soil, coastal plain, Massachusetts to Texas; also in Cuba, whence originally described.

64. *Panicum acuminatum* Swartz, Prodr. Veg. Ind. Occ. 23. 1788.

Sandy pine woods, moist banks, and open ground, Cuba and Jamaica; also Colombia. Originally described from Jamaica.

65. *Panicum erectifolium* Nash, Bull. Torrey Club 23: 148. 1896.

Moist pine woods, southeastern United States and Cuba. Originally described from Florida.

66. *Panicum albomarginatum* Nash, Bull. Torrey Club 24: 40. 1897.

Moist sandy woods, southeastern United States, Cuba, and Guatemala. Originally described from Florida. A study of more material may show that *Panicum trifolium* Nash<sup>1</sup> is found in Cuba. The following specimens appear to belong to the latter species; Province of Pinar del Río, León 3466; León & Hioram 4454. Isle of Pines, Britton, Britton & Wilson 15383.

67. *Panicum chamaelonche* Trin. Gram. Pan. 242. 1826.

Open sandy soil, southeastern United States and Cuba (Isle of Pines, Britton, Britton & Wilson 14218, 14221).

68. *Panicum portoricense* Desv.; Hamilt. Prodr. Pl. Ind. Occ. 11. 1825.

Moist sandy woods, southeastern United States, Cuba, and Porto Rico. Originally described from Porto Rico.

69. *Panicum lancearium* Trin. Gram. Pan. 223. 1826.

Sandy pine woods, southeastern United States, British Honduras, Cuba, and Santo Domingo. Originally described from North America, but without definite locality.

70. *Panicum scoparium* Lam. Encycl. 4: 744. 1798.

Wet places, southeastern United States and Cuba. Originally described from South Carolina.

71. *Panicum viscidellum* Scribn. U. S. Dept. Agr. Div. Agrost. Circ. 19: 2. 1900.

Open woods and slopes, Mexico to Colombia; also in Cuba. Originally described from Mexico.

72. *Panicum jooi* Vasey, U. S. Dept. Agr. Div. Bot. Bull. 8: 31. 1889.

Damp woods, southeastern United States, Mexico, and Cuba.

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<sup>1</sup> Bull. Torrey Club 26: 580. 1899.



## MISCELLANEOUS SPECIES.

73. *Panicum grande* Hitchc. & Chase, Contr. U. S. Nat. Herb. 17: 529. f. 143. 1915.

Lakes, ponds, and swamps, growing in the water, Panama and Trinidad to Pará. Originally described from Panama.

74. *Panicum zizanioides* H. B. K. Nov. Gen. & Sp. 1: 100. 1816.

Moist, usually shaded places, Mexico and Cuba, Jamaica, and Trinidad to Paraguay. Originally described from Colombia.

75. *Panicum hirtum* Lam. Encycl. 4: 741. 1798.

Damp shady places, Trinidad to Brazil. Originally described from Cayenne.

37. *ICHNANTHUS* Beauv.

Inflorescence and spikelets as in *Panicum*, the first glume often nearly as long as the spikelets, the fruit acute or subacute, the margins of the lemma usually flat, the rachilla produced below the lemma into a minute stipe, this bearing on either side membranaceous appendages adnate to the base of the lemma and free above, the appendages often wanting and indicated by minute excavations only.

Appendages of fertile lemma well-developed wings.

Sheaths densely long-villous.....6. *I. leiocarpus*.

Sheaths glabrate or somewhat pilose.

Blades lanceolate-linear, many times longer than wide; spikelets long-pediceled.....8. *I. ichnoides*.

Blades lanceolate-elliptic, not more than 6 times longer than wide.

7. *I. nemoralis*.

Appendages of fertile lemma reduced to scars.

Blades, or some of them, narrowed into a petiole; plants delicate; blades 3 to 5 mm. wide.....1. *I. mayarensis*.

Blades more or less clasping, often oblique at base, usually over 1 cm. wide.

Glumes with attenuate tips, usually exceeding the sterile lemma and floret; blades thin, more or less pilose.

Spikelets with a few long stiff hairs near the margin toward the summit of both glumes; plants delicate; blades rarely over 4 cm. long and 1 cm. wide.....2. *I. tenuis*.

Spikelets glabrous or scabrous on the midnerves only; blades up to 7 cm. long and 2 cm. wide.....3. *I. nemorosus*.

Glumes acute or acuminate but not attenuate, the first shorter than the spikelet; blades firmer.

Blades oval to ovate-lanceolate, 1.5 to 3.5 cm. wide, often pubescent beneath.....5. *I. axillaris*.

Blades lanceolate, 1 to 2 cm. wide, glabrous.....4. *I. pallens*.

1. *Ichnanthus mayarensis* (Wright) Hitchc. Contr. U. S. Nat. Herb. 12: 228. 1909.

*Panicum mayarense* Wright, Anal. Acad. Cienc. Habana 8: 206. 1871.

*Ichnanthus wrightii* Hitchc. Contr. U. S. Nat. Herb. 12: 229. 1909.

A slender, straggling, sparingly branching perennial with delicate but wiry culms, small lanceolate spreading, often petioled blades, and terminal panicles of few to several simple ascending branches with glabrous short-pediceled spikelets.

Dry pine woods and palm barrens, Cuba. Known only from Cuba (Mayarí, Woodfred, Campo Florido, and Arroyo Hondo). The type specimen of *Panicum*

*mayarensis* is from Mayarí; of *Ichnanthus wrightii* from the Río Seco in Arroyo Hondo, Pinar del Río.

2. *Ichnanthus tenuis* (Presl).

*Oplismenus tenuis* Presl, Rel. Haenk. 1: 319. 1830.

*Panicum alsinoides* Griseb. Fl. Brit. W. Ind. 550. 1864.

A slender creeping, lightly rooted, freely branching leafy annual, with ascending dorsiventral flowering shoots, pilose sheaths, lanceolate, softly pubescent blades oblique at base, and terminal and axillary panicles with few to several long simple ascending branches, the spikelets with a delicate attenuate tip.

Damp, shady banks, Central America and northern South America, and in Trinidad. Type specimen from Panama. *Panicum alsinoides* was described from Jamaica, St. Kitts, and Trinidad. A specimen in the Gray Herbarium labeled *Panicum alsinoides*, collected in Jamaica by March, is *Oplismenus setarius*. *Ichnanthus tenuis* is not known to us from Jamaica.

3. *Ichnanthus nemorosus* (Swartz) Doell in Mart. Fl. Bras. 2<sup>o</sup>: 289. 1877.

*Panicum nemorosum* Swartz, Prodr. Veg. Ind. Occ. 22. 1788.

*Milium nemorosum* Moench, Meth. Suppl. 67. 1802.

A creeping, freely branching perennial with unsymmetrical, narrowly ovate-acuminate spreading, sparsely pilose blades and rather few-flowered short-exserted terminal and axillary panicles.

Shady banks and rich woods, West Indies and Central America. Originally described from Jamaica.

Cuba, Haiti, Santo Domingo, Jamaica, St. Kitts, Martinique, St. Vincent, Grenada, and Trinidad.

4. *Ichnanthus pallens* (Swartz) Munro; Benth. Fl. Hongk. 414. 1861.

*Panicum pallens* Swartz, Prodr. Veg. Ind. Occ. 23. 1788.

Similar to the preceding, stems longer; blades longer, relatively narrower, glabrous (rarely with a few scattered hairs); panicles larger. Rather frequently in this species (and rarely in the others) the spikelets are altered to a series of closely imbricate, sometimes pubescent empty sterile lemmas strikingly different in appearance from the normal spikelets.

Rich woods and shady banks, Tropics of the Western Hemisphere. Originally described from Jamaica. Common on all the islands from Cuba to Trinidad.

5. *Ichnanthus axillaris* (Nees).

*Panicum axillare* Nees, Agrost. Bras. 141. 1829.

On the average stouter than *I. pallens* but the stems often short; blades broad for their length; panicles larger, more numerous, sometimes produced from all the upper nodes, more densely flowered. Like the preceding, this species is exceedingly variable.

Moist, more or less shaded slopes in the uplands, Santo Domingo, Porto Rico, Trinidad, and Tobago to Ecuador and Brazil. Originally described from Brazil.

6. *Ichnanthus leiocarpus* (Spreng.) Kunth, Rév. Gram. 1: Suppl. X. 1830.

*Panicum leiocarpon* Spreng. Neu. Entd. 1: 243. 1820.

*Navicularia lanata* Raddi, Agrost. Bras. 40. 1823.

Culms slender, 1 to 2 meters tall, with villous or lanate sheaths, lanceolate blades, pubescent on both sides, and large open panicles.

Trinidad (*Trin. Bot. Gard. Herb.* 3318) to Brazil. Originally described from Brazil.

7. *Ichnanthus nemoralis* (Schrad.).

*Panicum nemorale* Schrad.; Schult. Mant. 2: 255. 1824.

*Panicum martianum* Nees, Agrost. Bras. 138. 1829.

*Panicum petiolatum* Nees, Agrost. Bras. 140. 1829.

*Panicum lagotes* Trin. Mém. Acad. St. Pétersb. VI. Sci. Nat. 1: 326. 1834.

*Ichnanthus petiolatus* Doell in Mart. Fl. Bras. 2<sup>3</sup>: 278. 1877.

A straggling or clambering perennial, a meter or more long, with short-petioled broad blades, puberulent beneath, and long-exserted, rather open panicles, the short-pedicceled spikelets about 5 mm. long.

Among shrubs, Trinidad (*Trin. Bot. Gard. Herb.* 2278) and Tobago (*Broadway* 4472) to Brazil. Originally described from Brazil. The type specimens of all the synonyms mentioned above also come from Brazil.

#### 8. *Ichnanthus ichnodes* (Griseb.).

*Panicum ichnodes* Griseb. Fl. Brit. W. Ind. 551. 1864.

A robust, sparingly branching perennial about 2 meters tall with pilose or sometimes glabrate sheaths, long flat scabrous blades, as much as 2.5 cm. wide, and large many-flowered panicles with whorled, finally spreading branches and blunt long-pedicceled spikelets, the wings on the fertile lemma well developed, one-fourth the length of the fruit. When immature the panicle branches are erect, giving the panicle a dense club-shaped form very unlike that of the spreading mature panicle.

Wood borders, in partial shade, Trinidad, whence originally described, to Brazil.

#### 38. *LASIACIS* (Griseb.) Hitchc.

Inflorescence of open (rarely compact) panicles terminating the culm and leafy branches; spikelets subglobose, placed obliquely on their pedicels; glumes and sterile lemma broad, papery, shining, glabrous, commonly lanate at the apex; fruit white, bony-indurate, obovoid, both lemma and palea bearing at the apex, in a slight crateriform excavation, a tuft of woolly hairs, the palea concave below, gibbous above, the apex often free at maturity; woody-stemmed clambering (rarely crawling) perennials.

The climbing species are called "tibiśí" in Cuba, a name which is also applied to clambering bamboos and to *Olyra latifolia*.

Main stem prostrate.

Blades lanceolate, mostly less than 5 cm. long; flowering branches strongly dorsiventral, mostly prostrate-----1. *L. rugelii*.

Blades linear-lanceolate, about 10 to 12 cm. long; flowering branches ascending, not dorsiventral-----2. *L. grisebachii*.

Main stem clambering (rooting at the lower nodes in no. 3).

Ligule noticeable, brown, about 2 mm. long.

Blades scabrous on both surfaces, otherwise glabrous, elongate, more than 10 times as long as wide-----3. *L. oaxacensis*.

Blades puberulent beneath, glabrous above, less than 10 times as long as wide-----6. *L. ligulata*.

Ligule inconspicuous, hidden by the mouth of the sheath (sometimes as much as 1 mm. long).

Blades glabrous on both surfaces.

Blades narrow, usually 3 to 4 mm., sometimes 5 mm., wide, 8 to 10 cm. long-----4. *L. harrisii*.

Blades more than 5 mm. wide, or if narrower the length only 4 or 5 cm.

Panicles few-flowered, 5 to 10 cm. long; branches strongly zig-zag, the branchlets divaricate or reflexed; blades mostly less than 1 cm. wide (sometimes wider on vigorous sterile shoots)-----5. *L. divaricata*.

Panicles many-flowered, usually 15 to 25 cm. or more long; branches straight or arcuate, not zigzag; blades mostly over 1.5 cm. wide.

Spikelets 4.5 to 5 mm. long, on short stiff appressed pedicels -----7. *L. sloanei*.

Spikelets 3.5 to 4 mm. long, on flexuous pedicels.

8. *L. patentiflora*.

Blades pubescent on one or both surfaces.

Blades narrowly lanceolate, averaging 8 to 10 times as long as wide; panicle large and open-----9. *L. sorghoidea*.

Blades ovate-lanceolate, usually 3 to 5 times as long as wide; panicle usually compact, rather narrow---10. *L. ruscifolia*.

1. *Lasiacis rugelii* (Griseb.) Hitchc. Bot. Gaz. 51: 302. 1911.

*Panicum rugelii* Griseb. Cat. Pl. Cub. 233. 1866.

Prostrate, the main canes slender; branches commonly fascicled, very leafy, the pubescent sheaths overlapping, the small lanceolate firm puberulent, somewhat cinereous blades oblique at base; panicles short-exserted, few-flowered.

Rich woods, western Cuba, whence originally described, the type specimen being *Rugel* 188 from Matanzas. Richard<sup>1</sup> refers this species to *Panicum ruscifolium* H. B. K.

2. *Lasiacis grisebachii* (Nash) Hitchc. Bot. Gaz. 51: 302. 1911.

*Panicum grisebachii* Nash, Bull. Torrey Club 35: 301. 1908.

Stems more slender, freely producing rootlets, the long narrow blades not crowded; panicle branches ascending.

Rich woods and shady banks, carpeting the floor of dark thickets, western Cuba, whence originally described, the type specimen being *Britton & Shafer* 758 from Madruga.

3. *Lasiacis oaxacensis* (Steud.) Hitchc. Proc. Biol. Soc. Washington 24: 145. 1911.

*Panicum oaxacense* Steud. Syn. Pl. Glum. 1: 73. 1854.

Slender, straggling, decumbent and geniculate at base, with numerous aerial rootlets, the long branches ascending and arcuate, with narrow scabrous blades commonly 20 cm. long, and large open few-flowered panicles, the spikelets borne at the ends of the branchlets.

Edges of woods, western Jamaica, Mexico, and Central America. Originally described from Oaxaca.

4. *Lasiacis harrisii* Nash, Torrey 13: 274. 1913.

Climbing among bushes to a height of 5 meters or more, the main canes slender but strong, the very slender branches pendent, the young twigs commonly rosy purplish; blades linear, thin, and lax; panicles small, numerous, short-exserted, or partly included. This species is more completely glabrous than any other of the genus in the West Indies.

Shaded slopes, mostly at higher altitudes, Jamaica (Blue Mountains), Porto Rico (Quebradillas, Maricao, and Cayey), and St. Jan. Originally described from Jamaica, the type specimen collected at Cinchona by Delia Marble (no. 222). In Jamaica the species is found in the Blue Mountains at an altitude of 1,000 to 1,500 meters; in Porto Rico at an altitude of about 800 meters.

5. *Lasiacis divaricata* (L.) Hitchc. Contr. U. S. Nat. Herb. 15: 16. 1910.

*Panicum divaricatum* L. Syst. Nat. ed. 10. 2: 871. 1759.

*Panicum bambusoides* Desv.; Hamilt. Prodr. Pl. Ind. Occ. 10. 1825.

<sup>1</sup>In Sagra, Hist. Cuba 11: 307. 1850.

*Panicum chaurinii* Steud. Syn. Pl. Glum. 1: 68. 1854.

*Panicum divaricatum* var. *stenostachyum* Griseb. Fl. Brit. W. Ind. 551. 1864.

Shrubby, with strong canes, clambering to a height of 3 or 4 meters, the main branches often fascicled, the vigorous secondary foliage shoots mostly strongly divaricate or zigzag; usually glabrous throughout except on the margin of the sheaths; blades commonly less than 1 cm. wide, only on vigorous shoots as much as 1.5 cm. wide; panicles usually less than 10 cm. long, the branches deflexed at maturity.

Among shrubs at low altitudes, southern Florida to Central and South America, throughout the West Indies. Originally described from Jamaica. The type of *Panicum bambusoides* is from Porto Rico; of *P. chaurinii* from Guadeloupe; of *P. divaricatum* var. *stenostachyum* from Jamaica. This species and *L. sloanei* were included by Richard<sup>1</sup> under the name *Panicum glutinosum*. In Cuba called "pito de bejuco."

The commonest West Indian species of the genus, growing on all the islands, especially near the coast.

#### 6. *Lasiacis ligulata* sp. nov.

*Panicum divaricatum* var. *puberulum* Griseb. Fl. Brit. W. Ind. 551. 1864.

Clambering to a height of 5 to 10 meters, the robust glabrous central cane as much as 1 cm. in diameter, the wide-spreading main branches and the arcuate secondary ones not in fascicles, not zigzag; sheaths ciliate on the overlapping margin, otherwise glabrous; ligule membranaceous-ciliate, brown, 1 to 2 mm. long; blades flat, firm, 6 to 12 cm. long, 0.8 to 1.5 cm. wide, lanceolate, acuminate, narrowed to the base, glabrous on the upper surface, puberulent beneath, the margins scabrous; panicles ovoid, terminating the numerous branches, exserted or partly included, rather open, 5 to 10 cm. long, usually half to three-fourths as wide, the branches few, spreading, finally reflexed, branching or flowering from near the base, usually bearing 5 to 10 short-pediceled spikelets; spikelets about 4 mm. long, obovoid and purplish black at maturity, the glumes and sterile lemma as well as the fruit with a lanate tuft at the tips.

Type in the U. S. National Herbarium, nos. 865564 and 865565 (both specimens from the same individual), collected among bushes along stream, St. Anns, near Port of Spain, Trinidad, November 28, 1912, by A. S. Hitchcock (no. 10007).

In habit this species resembles *L. divaricata*, from which it differs in the long ligule, the puberulent under surface of the blades, and the arcuate or nearly straight, not zigzag branchlets.

*Panicum divaricatum* var. *puberulum* was described from Trinidad, the type collected by Cruieger. This species was collected at Bahia by Salzmänn and distributed as *Panicum fruticosum* Salzm. This name was mentioned by Steudel<sup>2</sup> as a synonym under *Panicum praegnans*, a different species from Oaxaca, and under *Panicum latifolium* by Doell<sup>3</sup> as a synonym.

Clambering over bushes and small trees, Porto Rico to Brazil.

Porto Rico (Arecibo, Chase 6454; Mayaguez, Britton & Marble 678; Maricao, Sintenis 215;<sup>4</sup> Cayey, Chase 6734, 6747; Sierra de Luquillo, Sintenis 1557; Laxes, Sintenis 5918), Tortola (Shafer 1147), St. Thomas (Britton & Marble 1230), Trinidad (Tabaquite, Hitchcock 10120; Port of Spain, Hitchcock 9962, 10007; Cedros, Hitchcock 10151; St. Joseph, Hitchcock 10020; Tamana, Broad-

<sup>1</sup> In Sagra, Hist. Cuba 11: 307. 1850.

<sup>2</sup> Syn. Pl. Glum. 1: 74. 1854.

<sup>3</sup> In Mart. Fl. Bras. 2<sup>o</sup>: 207. 1877.

<sup>4</sup> This number in the Krug & Urban Herbarium is *Lasiacis sorghoidea*.

way 4952, 4959; Caparo woods, *Broadway* 4923), and Tobago (center of island, *Hitchcock* 10261, 10262, 10269, 10275; Greenhill, *Broadway* 4033; Belmont woods, *Broadway* 3551).

7. *Lasiacis sloanei* (Griseb.) Hitchc. Bot. Gaz. 51: 302. 1911.

*Panicum latifolium* Hamilt. Prodr. Pl. Ind. Occ. 10. 1825, not L. 1753.

*Panicum sloanei* Griseb. Fl. Brit. W. Ind. 551. 1864.

Climbing to a height of 3 or 4 meters, forming a strong central cane; branches solitary or 2 or 3 together, elongate; blades parchment-like in texture at maturity, commonly 12 to 15 cm. long and 2 to 3 cm. wide, narrowed into a very short pubescent petiole; panicles commonly as much as 20 cm. long, nearly as wide, the branches rather rigid. The spikelets are larger in this species than in any other of the genus in the region.

Climbing among bushes and small trees, West Indies to South America. Originally described from Jamaica; *P. latifolium* described from the Antilles.

Cuba, Jamaica, Santo Domingo, Porto Rico, Dominica, St. Vincent, Grenada, and Trinidad.

8. *Lasiacis patentiflora* sp. nov.

High-climbing with a strong central cane as much as 8 mm. thick, the plant glabrous throughout except at the summit of the sheaths; branches numerous, solitary, widely spreading and finally repeatedly branching, the branches and branchlets straight or arcuate, divergent at a rather narrow angle; sheaths with a ring of hairs at the summit or at least a tuft of hairs on either side, sometimes pubescent on the margins toward the summit; ligule about 0.5 mm. long, thin-membranaceous; blades on vigorous shoots as much as 14 cm. long and 2.5 mm. wide, but mostly about 8 to 12 cm. long and 1.5 to 2 cm. wide, acuminate, rounded-tapering to the base, usually somewhat unsymmetrical, glabrous, scabrous on the margin and somewhat so on both surfaces; panicles numerous, short-exserted, mostly 12 to 20 cm. long, nearly as wide, the slender axis and distant spreading flexuous branchlets angled, scabrous, the pedicels flexuous, spreading; spikelets pale, blotched with dark blue or purple at maturity, 3.4 to 3.8 mm. long, globose-obovoid, the glumes and sterile lemma lanate-ciliate on the margin toward the apex; fruit 3 mm. long, 2 mm. wide.

Type in the U. S. National Herbarium, no. 865566, collected in the edge of woods on a mountain side, center of the island of Tobago, December 20, 1912, by A. S. Hitchcock (no. 10268).

In habit and general appearance *L. patentiflora* resembles *P. sloanei*, from which it differs in the narrower average width of the blades and the more loosely flowered, rather large panicles with smaller spikelets on flexuous spreading pedicels.

Borders of woods and jungles, Dominica, Trinidad (Port of Spain, *Hitchcock* 9990, 10323, 10324; Heights of St. Ann, *Hitchcock* 10034; River Estate, *Hitchcock* 10037), and Tobago (Spey Side, *Hitchcock* 10255, 10257; center of island, *Hitchcock* 10268, 10270; The Whim, *Broadway* 4841); also in Venezuela.

9. *Lasiacis sorghoidea* (Desv.).

*Panicum lanatum* Swartz, Prodr. Veg. Ind. Occ. 24. 1788, not Rottb. 1776.

*Panicum sorghoideum* Desv.; Hamilt. Prodr. Pl. Ind. Occ. 10. 1825.

*Panicum lanatum* var. *sorghoideum* Griseb. Fl. Brit. W. Ind. 551. 1864.

*Panicum martinicense* Griseb. Fl. Brit. W. Ind. 552. 1864.

*Panicum swartzianum* Hitchc. Contr. U. S. Nat. Herb. 12: 140. 1908.

*Lasiacis swartziana* Hitchc. Bot. Gaz. 51: 302. 1911.

Erect or clambering to a height of 5 to 7 meters, with a strong central cane as much as 1 cm. thick, the main branches 1 meter or more long, arcuate, bearing slender branchlets toward the pendent ends; sheaths and both surfaces of

the blades velvety, or the sheaths glabrescent, the blades of the main branches commonly 20 cm. long and 2.5 cm. wide, those of the branchlets much smaller, often less velvety; panicles usually about 10 to 20 cm. long, at maturity as wide or wider, the spikelets more or less clustered on the long distant branches.

Ravines, wood borders, and hedges, Mexico and the West Indies to South America. *Panicum sorghoideum* was described from Porto Rico; *Panicum lanatum* (upon which *Panicum swartzianum* was based) from Jamaica, and *P. martinicense* from Martinique.

Cuba (Province of Santa Clara), Jamaica, Porto Rico, St. Thomas, St. Croix, Antigua, Montserrat, Guadeloupe, Dominica, Martinique, St. Vincent, Grenada, Trinidad, and Tobago.

#### 10. *Lasiacis ruscifolia* (H. B. K.).

*Panicum ruscifolium* H. B. K. Nov. Gen. & Sp. 1: 101. 1816.

*Panicum compactum* Swartz, Adnot. Bot. 14. 1829, not Kit.; Schult. Oesterr.

Fl. ed. 2. 1: 212. 1814, as synonym.

*Lasiacis compacta* Hitchc. Bot. Gaz. 51: 302. 1911.

More robust than any other species, freely branching, with numerous leafy dorsiventral shoots with broad blades, velvety or glabrous beneath, glabrous or scabrous above, the sheaths glabrous or nearly so, the scarcely exerted, oblong or club-shaped panicles usually compactly flowered.

In all the Trinidad specimens the spikelets contain a second sterile lemma, a character not found in any other species known to us. This second sterile lemma equals the first, contains a hyaline palea, and infolds the fruit rather more closely than the sterile lemma commonly does in other species. The fruit borne one joint higher on the rachilla consequently faces in the direction opposite to the one usual in Paniceae; that is, the palea side of the fruit faces the second instead of the first glume.

Climbing over bushes, Cuba, Jamaica (Bluefields), Trinidad, and Mexico (whence originally described) to northern South America. No locality is mentioned in the original description of *P. compactum*, but the specimen in the Swartz Herbarium is labeled Jamaica.

### 39. *SACCOILEPIS* Nash.

Inflorescence a narrow spikelike panicle; spikelets pointed, the second glume and sterile lemma inflated (the glume more or less saccate), much larger than the minutely stipitate fruit.

Spikelets 4 mm. long on slender pedicels-----1. *S. striata*.

Spikelets 2 to 3 mm. long, subsessile.

Spikelets 3 mm. long; panicle often interrupted-----2. *S. vilvoldes*.

Spikelets 2 mm. long; panicle dense-----3. *S. myuros*.

#### 1. *Sacciolepis striata* (L.) Nash, Bull. Torrey Club 30: 383. 1903.

*Holcus striatus* L. Sp. Pl. 1048. 1753.

*Panicum striatum* Lam. Tabl. Encycl. 1: 172. 1791.

*Panicum gibbum* Ell. Bot. S. C. & Ga. 1: 116. 1816.

*Panicum elliottianum* Schult. Mant. 2: 256. 1824.

*Panicum aquaticum* Bosc; Spreng. Syst. Veg. 1: 319. 1825.

*Hymenachne striata* Griseb. Fl. Brit. W. Ind. 554. 1864.

*Sacciolepis gibba* Nash in Britton, Man. 89. 1901.

An aquatic or semiaquatic glabrous perennial, the culm 1 to 2 meters tall, rooting at the geniculate lower nodes, bearing a few erect branches, with long, flat blades and narrow panicles 10 to 20 cm. long.

Swamps and ditches, southeastern United States to Cuba (Hanábana, Lake Ariguanabo), Porto Rico (Humacao, Santurce, Campo Alegre), and Jamaica

(Montagne, Grosmond). Originally described from Virginia. The type of *Panicum gibbum* is from South Carolina, that of *Panicum aquaticum* from Bermuda.

2. *Sacciolepis vilvroides* (Trin.) Chase, Proc. Biol. Soc. Washington **21**: 7. 1908.  
*Panicum vilvroides* Trin. Gram. Pan. 171. 1826.

*Hymenachne fluviatilis* Nees, Agrost. Bras. 273. 1829.

A tall aquatic glabrous perennial with succulent unbranched culms and elongate linear blades; panicles about 8-mm. wide and 15 to 50 cm. long.

Swamps, Cuba (Pinar del Río, Isle of Pines) and northern South America. Originally described from Brazil, the type of *Hymenachne fluviatilis* also from Brazil.

3. *Sacciolepis myuros* (Lam.) Chase, Proc. Biol. Soc. Washington **21**: 7. 1908.  
*Panicum myuros* Lam. Tabl. Encycl. **1**: 172. 1791.

*Panicum myosurus* Rich. Act. Soc. Hist. Nat. Paris **1**: 106. 1792.

*Hymenachne myurus* Beauv. Ess. Agrost. 49, 165. 1812.

*Panicum phleiforme* Presl, Rel. Haenk. **1**: 302. 1830.

Similar to *S. vilvroides* in habit but annual, the blades mostly narrower, the panicles compact, spikelike, about 5 mm. thick.

Swamps and wet places, Mexico, Cuba (Isle of Pines), and Trinidad (Piarco Savanna, Pitch Lake) to South America. Originally described from tropical America, the type being from Cayenne. *Panicum myosurus* was also described from Cayenne; *Panicum phleiforme* from Mexico and Luzon. Grisebach<sup>1</sup> misapplies the name *Hymenachne fluviatilis* to this species.

#### 40. HYMENACHNE Beauv.

Spikelets short-pedicellate in long dense spikelike or interrupted panicles; spikelets acuminate; lemma and palea scarcely indurate, the margins of the lemma flat, the palea not inclosed above.

Inflorescence dense, spikelike-----1. *H. amplexicaulis*.  
Inflorescence long and narrow with ascending branches, not spikelike.

2. *H. auriculata*.

1. *Hymenachne amplexicaulis* (Rudge) Nees, Agrost. Bras. 276. 1829.

*Panicum amplexicaule* Rudge, Pl. Guian. **1**: 21. pl. 27. 1805.

*Agrostis monostachya* Poir. in Lam. Encycl. Suppl. **1**: 256. 1810.

*Panicum hymenachne* Desv. Opusc. 82. 1831.

A glabrous aquatic perennial with succulent sparingly branching culms, broad linear cordate-clasping blades, the panicles about 8 mm. thick and 20 to 50 cm. long.

Swamps and shallow water, often forming pure colonies, Tropics and Subtropics of both hemispheres. Originally described from British Guiana. The type of *Agrostis monostachya* and *Panicum hymenachne* is from Porto Rico. Grisebach<sup>1</sup> misapplies the name *Hymenachne myurus* to this species.

Cuba, Jamaica, Haiti, Santo Domingo, Porto Rico, Guadeloupe, Dominica, Martinique, and Trinidad.

2. *Hymenachne auriculata* (Willd.) Chase, Proc. Biol. Soc. Washington **21**: 5. 1908.

*Panicum auriculatum* Willd. in Spreng. Syst. Veg. **1**: 322. 1825.

*Panicum polystachyum* Presl, Rel. Haenk. **1**: 312. 1830.

*Hymenachne patula* Fourn. Mex. Pl. **2**: 37. 1886.

<sup>1</sup> Fl. Brit. W. Ind. 553. 1864.



Similar to *H. amplexicaulis*, olivaceous throughout (at least when dry), the panicles of numerous ascending, densely flowered branches, the lower distant.

River banks and shallow water, Cuba (Almendares River) and Trinidad (Oropuche) to South America. Originally described from tropical America, no definite locality given. The type of *Hymenachne patula* is Liebm. 402 from Bejucal, Cuba.

#### 41. SCUTACHNE Hitchc. & Chase.

Inflorescence paniculate; spikelets acuminate, attenuate at base; first glume membranaceous; second glume and sterile lemma leathery-indurate, the lemma inclosing a palea of like texture; fruit but slightly more indurate than the sterile lemma, mucronate, the summit of the palea not inclosed, densely pubescent on the margin.

Culms leafy, the blades elongate; panicles terminal only, of several branches.

##### 1. *S. dura*.

Culms nearly naked, the leaves reduced to the sheaths or nearly so, the basal leaves with blades; panicles terminal and axillary, simple.

##### 2. *S. amphistemon*.

1. *Scutachne dura* (Griseb.) Hitchc. & Chase, Proc. Biol. Soc. Washington **24**: 149. 1911.

*Panicum durum* Griseb. Mem. Amer. Acad. n. ser. **8**: 533. 1862.

*Alloteropsis dura* Hitchc. Contr. U. S. Nat. Herb. **12**: 211. 1909.

A glabrous ascending perennial, 4 to 7 cm. tall, with wiry simple culms, thick harsh blades, and panicles 6 to 10 cm. long, the long branches narrowly ascending, the hairy brown spikelets about 5 mm. long.

Rocky hills, Cuba (Farallones, Velestina), Jamaica (Albion Mountain), and Santo Domingo (Salinas). Originally described from eastern Cuba, the type being Wright 1539.

2. *Scutachne amphistemon* (Wright) Hitchc. & Chase, Proc. Biol. Soc. Washington **24**: 149. 1911.

*Panicum amphistemon* Wright, Anal. Acad. Cienc. Habana **8**: 207. 1871.

*Alloteropsis amphistemon* Hitchc. Contr. U. S. Nat. Herb. **12**: 211. 1909.

Culms tufted, slender, wiry, 25 to 40 cm. tall, the leaves clustered at the base, the flat blunt or rather abruptly pointed blades 10 to 15 cm. long, the panicles few-flowered.

Rocky slopes, Province of Oriente, Cuba, whence originally described, the type being Wright 3464, from Mayarí Abajo; found also in Loma Mensura (Shafer 3807).

#### 42. ISACHNE R. Br.

Inflorescence paniculate; spikelets small, subglobose; glumes subequal; lower floret perfect or staminate, its lemma and palea indurate and similar in form and texture to those of the upper floret; both fruits, plano-convex, nearly equal in size, usually remaining attached by the minute rachilla joint between them.

Fertile floret appressed-pubescent.

Blades linear-----1. *I. leersioides*.

Blades ovate-clasping-----8. *I. polygonoides*.

Fertile floret glabrous.

Panicle contracted, spikelike, not over 3 cm. long, the branches appressed or the lower sometimes ascending; plants low and spreading.

##### 2. *I. pygmaea*.

Panicle open, the branches spreading or ascending.

Blades about 3 mm. wide, thick, rigid, pungent, with conspicuously thickened midrib-----4. *I. rigidifolia*.

Blades mostly 0.5 to 2 cm. wide, firm but not pungent nor with thickened midrib.

Stems trailing; blades rarely over 5 cm. long-----3. *I. rigens*.

Stems clambering; blades mostly more than 8 cm. long.

Glumes pubescent; blades firm, not over 12 cm. long and 1 cm. wide-----5. *I. angustifolia*.

Glumes glabrous (rarely obscurely pubescent at tips); blades mostly over 15 cm. long and 1.5 cm. wide.

Spikelets aggregated toward the ends of the branches and branchlets-----6. *I. arundinacea*.

Spikelets not aggregated; panicle loosely flowered.

7. *I. disperma*.

1. *Isachne leersioides* Griseb. Mem. Amer. Acad. n. ser. 8: 533. 1862.

Tufted, straggling; culms elongate, wiry, branching; blades 7 to 12 cm. long, 2 to 4 mm. wide; panicles open, loosely flowered, the minute hairy spikelets on flexuous but stiff gland-bearing pedicels.

Dry cliffs and pine barrens, Cuba (Woodford, La Perla, Sierra de las Yeguas, south foot of Cajalbana). The type specimen is Wright 755, from eastern Cuba.

2. *Isachne pygmaea* Griseb. Fl. Brit. W. Ind. 553. 1864.

Slender, trailing, with ascending flowering branches 12 to 15 cm. long, the lower leaves bladeless, the upper with overlapping sheaths and divergent white-margined blades 1 to 3 cm. long, the narrow compact panicles 1 to 3 cm. long, the spikelets globose.

Grassy banks in the Blue Mountains of Jamaica at about 1,500 meters altitude (Cold Spring Gap, Moodys Gap). Originally described from a specimen collected by Macfadyen, no locality given.

3. *Isachne rigens* (Swartz) Trin. Gram. Pan. 252. 1826.<sup>1</sup>

*Panicum rigens* Swartz, Prodr. Veg. Ind. Occ. 23. 1788.

Tufted; culms long, slender, wiry, trailing, the numerous flowering shoots curving upward, the firm divergent scabrous white-margined blades 3 to 5 cm. long, 3 to 7 mm. wide, the pyramidal panicles 3 to 5 cm. long, about three-fourths as wide.

Damp shady banks, Blue Mountains, Jamaica, at 1,000 to 2,000 meters altitude. Originally described from Jamaica.

4. *Isachne rigidifolia* (Poir.) Urban, Symb. Antill. 4: 85. 1903.<sup>2</sup>

*Agrostis rigidifolia* Poir. in Lam. Encycl. Suppl. 1: 257. 1810.

*Milium rigidum* Poir. in Lam. Encycl. Suppl. 1: 257. 1810, as synonym of *Agrostis rigidifolia*.

*Milium rigidifolium* Roem. & Schult. Syst. Veg. 2: 319. 1817.

*Panicum rigidifolium* Kunth, Rév. Gram. 1: 37. 1829.

Culms trailing, compressed, with short internodes throughout, branching toward the end, the base simple and naked, the branches with overlapping sheaths, the smooth rigid spreading pointed blades 3 to 5 cm. long, about 3 mm. wide, with a prominent midnerve; panicles long-exserted, about 5 cm. long, 2 to 3 cm. wide.

<sup>1</sup> For discussion of the species confused with this by Trinius and others see Hitchcock, Contr. U. S. Nat. Herb. 12: 138. 1908.

<sup>2</sup> For discussion of species referred to this name by Urban see Hitchcock, Contr. U. S. Nat. Herb. 12: 138. 1908.

Mountain meadows, Haiti, Santo Domingo (Río Yaque), Saba, Guadeloupe, and Martinique. Originally described from Santo Domingo.

5. *Isachne angustifolia* Nash, Bull. Torrey Club 30: 377. 1903.

Culms often 2 meters long, hard and wiry with a long naked base, branching from the upper nodes, the branches long, leafy, nearly parallel, bearing secondary branches toward the ends, the whole forming a wide flabellate or loosely corymbose mass, in its most characteristic development pushing through the jungle of stream bank or trail side and hanging over the bushes; blades firm, divergent, 5 to 12 cm. long, 5 to 10 mm. wide, paler beneath; panicles commonly 10 to 12 cm. long, about half as wide.

Rocky slopes among brush, Porto Rico (at higher altitudes) and Guadeloupe. Type specimen Wilson 160, collected on the summit of El Yunque, Luquillo Mountains, Porto Rico.

6. *Isachne arundinacea* (Swartz) Griseb. Fl. Brit. W. Ind. 553. 1864.

*Panicum arundinaceum* Swartz, Prodr. Veg. Ind. Occ. 24. 1788.

*Isachne panicea* Trin. Gram. Pan. 253. 1826.

Climbing among shrubs or small trees to a height of as much as 6 meters, with strong canes and elongate branches; blades commonly 20 cm. long and 1.5 to 2 cm. wide, scabrous; panicles about 12 cm. long, the long lower branches at first ascending, finally wide-spreading; spikelets crowded toward the ends of the branches.

Wooded hillsides, Jamaica at an altitude of 1,000 to 2,000 meters; also Mexico to northern South America. Originally described from Jamaica.

7. *Isachne disperma* (Lam.) Doell in Mart. Fl. Bras. 2<sup>2</sup>: 274. 1877.

*Panicum dispernum* Lam. Tabl. Encycl. 1: 173. 1791.

*Panicum multinerve* Desv.; Poir. in Lam. Encycl. Suppl. 4: 279. 1816.

*Isachne dubia* Kunth, Rév. Gram. 1: 42. 1829.

Similar to the preceding, the blades larger, smooth, the panicles larger, the spikelets scattered.

Mountain woods, Lesser Antilles. Originally described from tropical America. There is nothing on the label of the type specimen to indicate its origin. *Panicum multinerve* is described from the Antilles. The label of the type specimen indicates that the plant came from Porto Rico. As the species has not since been collected upon that island, the locality may be doubted.

St. Kitts, Guadeloupe, Dominica, Martinique, St. Vincent, Grenada, and Tobago.

8. *Isachne polygonoides* (Lam.) Doell in Mart. Fl. Bras. 2<sup>2</sup>: 273. 1877.

*Panicum polygonoides* Lam. Encycl. 4: 742. 1798.

*Panicum trachyspermum* Nees, Agrost. Bras. 212. 1829.

*Isachne trachysperma* Nees in Seem. Bot. Voy. Herald 224. 1857.

Flowering shoots 20 to 30 cm. tall, erect from a long creeping, freely branching culm, rooting at the nodes, the whole plant often a meter in length, the erect shoots finally bearing fascicled branchlets, the sheaths hispid, the spreading lanceolate-ovate blades very scabrous; panicles included at base, about 5 cm. long and as broad, loosely many-flowered.

Moist ground, Central America and Trinidad (Piarco Savanna) to Brazil. Originally described from Cayenne. *Panicum trachyspermum* was described from Brazil.

#### 43. OPLISMENUS Beauv.

Inflorescence of several thick racemes along a common axis; spikelets sessile; glumes and sterile lemma awned or mucronate; fruit as in *Panicum*, acute.

Racemes villous with long hairs; first glume awned from between 2 lobes.

1. *O. burmanni*.

Racemes not villous or with a few long hairs only; first glume tapering into the awn.

Blades of flowering stems mostly 2 to 4 cm. long, 5 to 10 mm. wide; racemes short, usually 3 to 5 mm. long, containing 3 to 5 spikelets.

2. *O. setarius*.

Blades of flowering stems mostly more than 4 cm. long; racemes 1 to 3 cm. long-----3. *O. hirtellus*.

1. *Oplismenus burmanni* (Retz.) Beauv. Ess. Agrost. 54. 1812.

*Panicum burmanni* Retz. Obs. Bot. 3: 10. 1783.

*Oplismenus cristatus* Presl, Rel. Haenk. 1: 323. 1830.

A low, creeping, freely branching annual with pilose sheaths, broadly lanceolate-elliptic blades, and 3 to 5 pale villous ascending racemes approximate along a flexuous axis; awns slender, about 1 cm. long.

Open or somewhat shaded ground and waste places, Mexico to South America; also in Santo Domingo (Maniel de Ocoa, Constanza). Common in the Tropics of the Old World, whence probably introduced into America. Originally described from India. *Oplismenus cristatus* was described from Mexico.

2. *Oplismenus setarius* (Lam.) Roem. & Schult. Syst. Veg. 2: 481. 1817.

*Panicum setarium* Lam. Tabl. Encycl. 1: 170. 1791.

*Orthopogon setarius* Spreng. Syst. Veg. 1: 306. 1825.

A slender creeping branching perennial, the ascending flowering stems 20 to 30 cm. high, the small lanceolate blades conspicuously undulate-margined, the rachis of the distant racemes very short, the spikelets appearing to be in clusters on the rather strict axis.

Moist woods and shady banks, Georgia to Texas and in the West Indies, here common in the coffee groves. Originally described from tropical America, the particular locality not given.

Bermuda, Bahamas, Cuba, Jamaica, Santo Domingo, Porto Rico, St. Thomas, St. Croix, St. Kitts, Antigua, Dominica, Martinique, and Trinidad.

3. *Oplismenus hirtellus* (L.) Beauv. Ess. Agrost. 54, 168. 1812.

*Panicum hirtellum* L. Syst. Nat. ed. 10. 2: 870. 1759.

*Orthopogon hirtellus* Nutt. Gen. Pl. 55. 1817.

*Orthopogon loliaceus* Spreng. Syst. Veg. 1: 306. 1825.

*Orthopogon cubensis* Spreng. Syst. Veg. 1: 307. 1825.

*Oplismenus cubensis* Kunth, Rév. Gram. 1: 45. 1829.

*Panicum cubense* Steud. Nom. Bot. ed. 2. 2: 255. 1841.

Mostly less slender than the preceding, taller, the blades longer, the ascending or spreading racemes sometimes 3 cm. long. This species is exceedingly variable in size, pubescence, length of racemes, and length of awns, and apparently intergrades with *O. setarius*. The sheaths vary from glabrous to conspicuously hirsute. Grisebach<sup>1</sup> refers the form with glabrous sheaths to *Orthopogon loliaceus* Spreng. (*Oplismenus loliaceus* (Lam.) Beauv.), an Asiatic species. A variegated form has sometimes escaped from cultivation (Guadeloupe, Duss 3155. Martinique, Duss 1325. Dominica, Jones 37).

Moist woods and shady banks, Mexico and throughout the West Indies to South America. The type specimen was from Jamaica. *Orthopogon cubensis* was described from Cuba. Richard<sup>2</sup> refers the pubescent form to *O. undulatifolius* Roem. & Schult. In Cuba called "pitillo."

<sup>1</sup> Fl. Brit. W. Ind. 545. 1864.

<sup>2</sup> In Sagra, Hist. Cuba 11: 308. 1850.

44. *ECHINOCHLOA* Beauv.

Inflorescence paniculate, the usually compact, densely flowered panicle composed of 1-sided racemes or of subsimple branches; spikelets hispid or spiny; glumes usually mucronate; sterile lemma usually awned; fruit subindurate, acuminate-pointed, the summit of the palea not inclosed.

Spikelets awnless or mucronate only; racemes simple, rather remote.

1. *E. colonum*.

Spikelets more or less awned; racemes subcompound, approximate.

Awn not longer than the body of the spikelet; racemes slender, the lower as much as 7 cm. long; plants robust, as much as 2 meters tall.

2. *E. pyramidalis*.

Awn conspicuous.

Ligule obsolete; spikelets, excluding the awns, 3 to 4.5 mm. long.

3. *E. sabulicola*.

Ligule of stiff yellow hairs; spikelets, excluding the awns, 5 to 6 mm. long.-----4. *E. spectabilis*.

1. *Echinochloa colonum* (L.) Link. Hort. Berol. 2: 209. 1833.

*Panicum colonum* L. Syst. Nat. ed. 10. 2: 870. 1759.

A glabrous tufted annual, the culms compressed, branching at the more or less decumbent base; blades flat, linear, about 5 mm. wide, sometimes barred with purplish brown; racemes usually 5 to 10, ascending, distant nearly their own length on the strict axis.

Ditches and moist places in the warmer parts of both hemispheres. Introduced into America. Originally described from Jamaica. A common weed to be found on probably all of the islands of the West Indies. In Cuba the zonate form is called "grama piutada."

2. *Echinochloa pyramidalis* (Lam.).

*Panicum pyramidale* Lam. Tabl. Encycl. 1: 171. 1791.

*Panicum spectabile* var. *guadeloupense* Hack. Notizbl. Bot. Gart. Berlin 1: 328. 1897.

A glabrous, sparingly branching, somewhat fleshy annual 2 meters or more tall, with elongate blades 1 to 1.5 cm. wide and a long tapering panicle, the relatively slender branches ascending or slightly drooping.

In ditches, Guadeloupe, introduced from Africa. Originally described from Senegal. *Panicum spectabile* var. *guadeloupense* was described from Guadeloupe.

3. *Echinochloa sabulicola* (Nees) Hitchc. Contr. U. S. Nat. Herb. 17: 257. 1913.

*Panicum sabulicola* Nees, Agrost. Bras. 258. 1829.

*Panicum aristatum* Macfad. Bot. Misc. Hook. 2: 115. 1831.

*Oplismenus jamaicensis* Kunth, Enum. Pl. 1: 147. 1833.

*Panicum jamaicense* Steud. Nom. Bot. ed. 2. 2: 257. 1841.

An erect, often robust, usually fleshy annual, with nearly simple culms often decumbent and rooting at base, and long narrow nodding panicles of usually long-awned spikelets; sheaths sometimes hirsute or papillose.

Swamps and ditches, Mexico and the West Indies to South America. Originally described from Brazil. *Panicum aristatum*, upon which are based *Oplismenus jamaicensis* and *Panicum jamaicense*, was described from Jamaica. A part of Wright 3879 has hirsute sheaths and was referred to *Echinochloa walteri*.<sup>1</sup> Some of the specimens referred to this species may belong to *E. crus-*

<sup>1</sup> Hitchc. Contr. U. S. Nat. Herb. 12: 213. 1909.

*galli* L. (to which, under *Panicum*, it is referred by Grisebach<sup>1</sup>), common in the United States. The latter differs in the erect rather than nodding panicles, with spreading rather than appressed branches, and in the culms erect or spreading at base rather than decumbent and rooting. Certain specimens from Bermuda (*Collins* 343, *Brown & Britton* 333, *Brown, Britton & Bissett* 1961, all in the herbarium of the New York Botanical Garden) appear to be *E. crusgalli*.

Cuba, Jamaica, Porto Rico, Guadeloupe, Martinique, and Trinidad.

4. *Echinochloa spectabilis* (Nees) Link, Hort. Berol. 2: 209. 1883.

*Panicum spectabile* Nees, Agrost. Bras. 262. 1829.

A robust fleshy perennial, the tall culms erect from a creeping base, the nodes usually villous, the blades as much as 3 cm. wide, the narrow, densely flowered panicle erect or nearly so.

Swamps and ditches near the coast, southern Mexico and the West Indies to Paraguay. Originally described from Brazil.

Cuba (Almendares River), Jamaica (Savanna-la-Mar), Haiti, Santo Domingo (Rincon), Porto Rico (Mayaguez), Antigua, Martinique, and Tobago.

45. *CHAETIUM* Nees.

Inflorescence a dense narrow panicle; spikelets lanceolate, the rachilla joint between the glumes elongate, forming, with the bearded adnate base of the first glume, a sharp-pointed callus; glumes and sterile lemma awned; fruit subindurate, awn-tipped, the summit of the palea not inclosed.

1. *Chaetium cubanum* (Wright) Hitchc. Contr. U. S. Nat. Herb. 12: 232. 1909.

*Perotis? cubana* Wright, Anal. Acad. Cienc. Habana 8: 288. 1871.

A slender erect tufted perennial about 40 cm. tall with narrow blades and delicate few-flowered panicles of small long-awned spikelets.

Only known from the type collection, *Wright* 735, from eastern Cuba.

46. *TRICHOLAENA* Schrad.

Inflorescence paniculate; spikelets short-pedicellate, the first glume minute, the rachilla joint between the glumes elongate; second glume and sterile lemma copiously clothed with long, silky hairs, 2-lobed, with a delicate awn between the lobes; fruit subindurate.

1. *Tricholaena rosea* Nees, "Cat. Sem. Hort. Vratisl. a. 1836;" Fl. Afr. Austr. 17. 1841.

NATAL GRASS.

A tufted short-lived slender perennial, about 1 meter tall, more or less decumbent at base, with sparsely papillose-hirsute sheaths, narrow flat blades, and beautiful silky rosy purple panicles (in herbarium specimens sometimes faded to pinkish gray).

Occasional in waste ground, sparingly introduced in the warmer regions of the Western Hemisphere. Originally described from South Africa.

Cuba (Habana, Campo Florido, Matanzas).

47. *CHAETOCHLOA* Scribn.

Inflorescence a dense spikelike (rarely loose) panicle, the spikelets solitary or in small clusters subtended by 1 to several slender scabrous bristles (sterile branchlets), these persistent after the fall of the spikelets; spikelets as in *Panicum*, turgid, the fruit usually transversely rugose.

<sup>1</sup> Fl. Brit. W. Ind. 546. 1864.

Bristles solitary, below only part of the spikelets; branches of the panicle elongate; blades broad, usually more than 1 cm. wide, plaited, tapering at each end. (Section *PTYCHOPHYLLUM*.)

Plants annual; blades 1 to 3 cm. wide; main panicle branches rather distant, 1 to 3 cm. long.....1. *C. barbata*.

Plants perennial; blades 3 to 8 cm. wide; main panicle branches approximate, mostly over 3 cm. long.

Panicle dense, long and narrow, the branches ascending; sheaths glabrous or mostly so .....2. *C. sulcata*.

Panicle loose, the branches spreading or drooping, the lower 10 to 15 cm. long; sheaths hirsute.....3. *C. palmifolia*.

Bristles 1 or more below each spikelet (or below only a part of the spikelets in *C. setosa*).

Plants annual.

Bristles antrorsely scabrous.

Bristles 5 to 12 at the base of each spikelet; second glume half as long as the rugose fruit.....11. *C. lutescens*.

Bristles 1 to 3 at the base of each spikelet; second glume about as long as the spikelet.

Plants robust; spike 15 to 30 mm. thick; fruit smooth.

12. *C. magna*.

Plants slender, rarely 1 meter tall; spike scarcely 1 cm. thick; fruit slightly roughened.....13. *C. viridis*.

Bristles, or some of them, retrorsely scabrous.

Plants 1 meter or more tall; bristles mostly more than 1 cm. long, divaricate and implicate.....15. *C. tenacissima*.

Plants low (rarely 70 cm. high), often spreading; bristles usually not over 5 mm. long, straight or nearly so.

Rachis villous; bristles several below each spikelet.

16. *C. scandens*.

Rachis not villous; bristles 1 or 2 below each spikelet.

14. *C. verticillata*.

Plants perennial.

Inflorescence a dense cylindrical spike.

Nodes and sheaths glabrous.....9. *C. geniculata*.

Nodes appressed-pubescent; sheaths scabrous and sparsely hispid.

10. *C. hispida*.

Inflorescence more or less open or interrupted, or tapering, not a dense cylindrical spike.

Blades commonly 3 cm. wide, tapering into a long petiole-like base.

8. *C. vulpiseta*.

Blades mostly less than 2 cm. wide, not tapering into a petiole-like base.

Spikelets at maturity globose, about as thick as long; bristles, or some of them, 2 cm. long or more.

Sheaths densely long-villous on the collar; blades about 2 cm. wide.....7. *C. impressa*.

Sheaths slightly pilose on the collar; blades about 1 cm. wide .....6. *C. onurus*.

Spikelets ovoid, longer than thick; bristles mostly less than 1 cm. long.

Blades slender, mostly less than 5 mm. broad; spike slender, very narrow.....5. *C. rariflora*.

Blades linear-lanceolate, more than 5 mm. broad; spike interrupted or branched, the branches 1 to 3 cm. long.

4. *C. setosa*.

1. *Chaetochloa barbata* (Lam.).

*Panicum barbatum* Lam. Tabl. Encycl. 1: 171. 1791.

*Panicum costatum* Roxb. Fl. Ind. ed. Carey 1: 314. 1820.

*Panicum viaticum* Salzm.; Doell in Mart. Fl. Bras. 2<sup>2</sup>: 155. 1877.

A weak-stemmed annual, geniculate at base, with thin scabrous blades and narrow panicles of numerous pale racemes. In small specimens the plating of the blades is sometimes obscure.

A weed in open and waste ground from the West Indies to Brazil, introduced, a native of the tropics of Asia. Originally described from Mauritius. *Panicum costatum* was described from India, *P. viaticum* from Brazil. Grisebach<sup>1</sup> misapplies the name *P. flavesccns* Swartz (a synonym of *P. fasciculatum* Swartz) to this species. Called "Mary grass" in Tobago.

Jamaica, Haiti, Porto Rico, Antigua, Guadeloupe, Dominica, Martinique, St. Lucia, St. Vincent, Grenada, Barbados, Trinidad, and Tobago.

2. *Chaetochloa sulcata* (Aubl.) Hitchc. Contr. U. S. Nat. Herb. 17: 260. 1913.

GAMALOTE.

*Panicum sulcatum* Aubl. Pl. Guian. 1: 50. 1775.

A tall caespitose perennial with compressed culms and sheaths, the internodes sulcate on the side toward the sheath, thin strongly plaited blades commonly 50 cm. long and 5 cm. wide, and elongate narrow panicles with slender bristles several times longer than the spikelets.

Moist woods, Mexico to Trinidad, Tobago, and Brazil. Originally described from British Guiana. In Trinidad this species is a troublesome weed in cacao groves.

3. *Chaetochloa palmifolia* (Willd.).

*Panicum palmifolium* Willd.; Poir. in Lam. Encycl. Suppl. 4: 282. 1816.

*Panicum plicatum haitiense* Kunth; Griseb. Fl. Brit. W. Ind. 547. 1864.

On the average taller than the preceding, the sheaths hispid, blades larger, panicle larger, the numerous long slender branches drooping.

Rocky woods and shady banks, often growing in large colonies, apparently introduced in the West Indies. Originally described from India. The varietal name ascribed by Grisebach to Kunth was probably a herbarium name. It is not found in any of Kunth's works so far as we know. The name *Panicum plicatum* Lam. has been applied to this species by many authors, *P. palmifolium* Willd. being based upon *P. plicatum* as described by Willdenow.<sup>2</sup> *Panicum palmaefolium* Koen.<sup>3</sup> an earlier nomen nudum, is probably the same species. In Tobago this grass is called "gamalote." Like *Chaetochloa sulcata* it is a weed in cacao groves. The former species, however, is rare in Tobago.

Jamaica, Guadeloupe, Dominica, Martinique, St. Vincent, Grenada, Trinidad, and Tobago.

4. *Chaetochloa setosa* (Swartz) Scribn. U. S. Dept. Agr. Div. Agrost. Bull. 4: 39. 1897.

*Panicum setosum* Swartz. Prodr. Veg. Ind. Occ. 22. 1788.

*Panicum caudatum* Lam. Tabl. Encycl. 1: 171. 1791.

*Panicum brachiatum* Poir. in Lam. Encycl. Suppl. 4: 282. 1816.

*Setaria elongata* Spreng.; Schult. Mant. 2: 280. 1824.

*Panicum onurus* Willd.; Nees, Agrost. Bras. 251. 1829, as synonym.

<sup>1</sup> Fl. Brit. W. Ind. 547. 1864.

<sup>2</sup> Enum. Pl. 1033. 1809.

<sup>3</sup> Naturf. 23: 208. 1788.



*Setaria brachiata* Kunth, Rév. Gram. 1: 47. 1829.

*Panicum paractenioides* Trin. Mém. Acad. St. Pétersb. VI. Sci. Nat. 1: 219. 1834.

*Panicum dumetorum* A. Rich.; Steud. Syn. Pl. Glum. 1: 49. 1854.

*Panicum restitutum* Steud. Syn. Pl. Glum. 1: 53. 1854.

*Setaria setosa* var. *caudata* Griseb. Fl. Brit. W. Ind. 555. 1864.

*Pennisetum swartzii* F. Muell. Fragm. 8: 110. 1873.

A slender, wiry, sparingly branching, tufted perennial, the culms and sheaths compressed; blades mostly not over 20 cm. long, pubescent or scabrous; panicles pale, tapering to a slender summit, the branches erect, ascending, or sometimes divergent, the lower commonly 1 to 1.5 cm. long, sometimes as much as 3 cm. long, somewhat remote. One form of this species is more wiry, rigid or woody at base, often decumbent and rooting at the nodes, the branches erect or divergent, the panicles open, with distant slender often reflexed branches. This is found on dry brushy hillsides under more xerophytic conditions. Numerous intermediate specimens connect this form with typical *C. setosa*. This form was described as *Panicum brachiatum*, *P. paractenioides*, and *P. dumetorum*, the first from the Antilles, the second from Crab Island (Vieques), the third from Santo Domingo. The following Porto Rican specimens represent this form: Britton & Wheeler 233, from Culebra; Chase 6519, 6536, from Guanica; Hess 426, from Desecheo; also Hitchcock 9315, from Kingston, Jamaica.

Dry or rocky woods, West Indies to Brazil. Originally described from Jamaica. *Panicum caudatum* was described from Brazil and Cayenne. The type of *Setaria elongata* (and of *Panicum restitutum*) is from Santo Domingo, collected by Bertero. Through the courtesy of Dr. Urban we have been able to examine the specimen in the Willdenow Herbarium (no. 18813) mentioned by Nees as "*Panicum onurus* Willd. Herb." This specimen is *Chaetochloa setosa* (Swartz) Scribn. and is not the species described by Grisebach<sup>1</sup> and others as *Setaria onurus*. Nees's description of *Panicum setosum* Swartz var.  $\beta$ , under which *Panicum onurus* Willd. Herb. is cited as a synonym, is based upon the second specimen cited, namely, one collected in Monte Video by Sellow. The Sellow specimen is *Setaria onurus* as understood by Grisebach (see no. 7). Richard<sup>2</sup> described *C. setosa* as *Setaria macrostachya*.

Bahamas (Water Cay), Cuba, Jamaica, Haiti, Santo Domingo, Porto Rico, St. Thomas, St. Jan, St. Croix, Guadeloupe, and Trinidad.

##### 5. *Chaetochloa rariflora* (Mikan).

*Setaria rariflora* Mikan; Trin. in Spreng. Neu. Entd. 2: 78. 1821.

More slender than the preceding, the blades averaging longer and narrower, the spikelike panicle very slender, the short branches appressed, the lower rather distant.

Sterile brushy hills, West Indies to Brazil, whence originally described. This species has usually been referred to *Setaria caudata* (Lam.) Roem. & Schult., the type of which, however, belongs to *Chaetochloa setosa*.

Porto Rico (Boqueron), St. Thomas, St. Croix, Antigua, and St. Vincent.

##### 6. *Chaetochloa onurus* (Willd.) Scribn. & Merr. U. S. Dept. Agr. Div. Agrost. Bull. 21: 27. 1900.

*Panicum onurus* Willd.; Trin. Mém. Acad. St. Pétersb. VI. Sci. Nat. 1: 226. 1834.

*Setaria onurus* Griseb. Fl. Brit. W. Ind. 555. 1864.

<sup>1</sup> Fl. Brit. W. Ind. 555. 1864.

<sup>2</sup> In Sagra, Hist. Cuba 11: 309. 1850.

Tufted, erect, commonly 1 meter tall, the culms and sheaths compressed, the numerous elongate blades mostly 0.8 to 1.2 cm. wide, usually reaching beyond the base of the rather loose panicle of large globose spikelets and long flexuous bristles.

Savannas, rocky banks, and open woods, West Indies to Uruguay. Originally described from Montevideo. *Panicum onurus* was first mentioned by Nees<sup>1</sup> as a synonym under *P. setosum* var.  $\beta$  ("*P. onurus*, Willd. Herb.—ex Humboldtianis"). Nees gives as the "habitat" of  $\beta$  the following: "in regno Mexicano (ab Humb.—Vidi in Herb. Willd. In Monte Video. (Sellow.) (Vidi in Herb. Reg. Berol.)" The Willdenow specimen is *Chaetochloa setosa*, but the Sellow specimen belongs to the species later described by Trinius as *Panicum onurus*. Although Trinius, in the work cited above, credits the name to Willdenow ("*Panicum onurus* Willd. hb."), he describes the Sellow specimen instead of the Willdenow specimen. The name *Panicum onurus* was first technically published by Trinius. We take the Sellow specimen from Montevideo as the type, this being the one described, rather than the Willdenow specimen which Trinius did not see, though, following Nees, he supposed the two specimens to belong to the same species.

Cuba, Jamaica, and Barbados.

#### 7. *Chaetochloa impressa* (Nees).

*Panicum impressum* Nees, Agrost. Bras. 247. 1829.

*Panicum sphaerocarpum* Salzm.; Steud. Syn. Pl. Glum. 1: 51. 1854, not Ell. 1816.

*Panicum amphibolum* Steud. Syn. Pl. Glum. 1: 51. 1854.

*Setaria biconvexa* Griseb. Fl. Brit. W. Ind. 555. 1861.

*Chaetochloa salzmänniana* Hitchc. Contr. U. S. Nat. Herb. 17: 265. 1913.

Similar to the preceding, the culms taller, less compressed, the blades broader, the panicle branches 2 to 3 cm. long, at maturity ascending at a uniform angle, the spikelets mostly along the lower side.

Copses and dry open woods, southern Mexico to western Trinidad and Brazil. Originally described from the Province of Bahia, Brazil. The type of *Panicum sphaerocarpum* Salzm. and *Chaetochloa salzmänniana* and the type of *Panicum amphibolum* come from Bahia. *Setaria biconvexa* was described from Trinidad.

#### 8. *Chaetochloa vulpiseta* (Lam.).

*Panicum vulpiscetum* Lam. Encycl. 4: 735 (err. typ. 745). 1798.

*Setaria vulpiseta* Roem. & Schult. Syst. Veg. 2: 495. 1817.

*Panicum amplifolium* Steud. Syn. Pl. Glum. 1: 53. 1854.

In large clumps about 1 meter tall, the culms strongly compressed, the numerous thin blades commonly 50 cm. long and 3 cm. wide, tapering into a long petiole-like base, the bristly spikelike panicle 20 to 30 cm. long, about 2.5 cm. thick, tapering to both ends.

Copses and brushy slopes, West Indies and Central America to Paraguay. Originally described from Santo Domingo. *Panicum amplifolium* is based upon *Keppler* 1411 from Surinam. Lamarek, Grisebach, and others cite a plate in Sloane,<sup>2</sup> which, however, represents *Imperata contracta* (H. B. K.) Hitchc. (*I. caudata* Trin.).

Porto Rico (between Río Piedras and Trujillo Alto), Trinidad, and Tobago.

#### 9. *Chaetochloa geniculata* (Lam.) Millsp. & Chase, Field Mus. Bot. 3: 37. 1903.

*Panicum geniculatum* Lam. Encycl. 4: 727 (err. typ. 737). 1798.

*Setaria geniculata* Beauv. Ess. Agrost. 51, 178. 1812.

<sup>1</sup> See note under *Chaetochloa setosa*, p. 349 of the present article.

<sup>2</sup> Voy. Jam. 1: pl. 70. f. 1. 1707.

*Setaria purpurascens* H. B. K. Nov. Gen. & Sp. 1: 110. 1816.

*Panicum imberbe* Poir. in Lam. Encycl. Suppl. 4: 272. 1817.

*Setaria berteroniana* Schult. Mant. 2: 276. 1824.

*Panicum penicillatum* Nees, Agrost. Bras. 242. 1829.

*Setaria ventenatii* Kunth, Rév. Gram. 1: 251. pl. 37. 1829.

*Panicum berteronianum* Steud. Syn. Pl. Glum. 1: 50. 1854.

*Setaria glauca* var. *imberbis* Griseb. Fl. Brit. W. Ind. 554. 1864.

*Setaria glauca* var. *penicillata* Griseb. Fl. Brit. W. Ind. 554. 1864.

*Chaetochloa imberbis* Scribn. U. S. Dept. Agr. Div. Agrost. Bull. 4: 39. 1897.

*Chaetochloa imberbis geniculata* Scribn. & Merr. U. S. Dept. Agr. Div. Agrost. Bull. 21: 12. 1900.

*Chaetochloa purpurascens* Scribn. & Merr. U. S. Dept. Agr. Div. Agrost. Bull. 21: 13. 1900.

*Chaetochloa ventenatii* Nash in Kearney, Contr. U. S. Nat. Herb. 5: 515. 1901.

*Setaria glauca geniculata* Urban, Symb. Antill. 4: 96. 1903.

*Setaria glauca purpurascens* Urban, Symb. Antill. 4: 96. 1903.

Tufted, the slender compressed culms erect, geniculate at base, or sometimes spreading, the blades mostly 5 to 8 mm. wide, the long-exserted dense spike-like yellow or purplish panicle 5 to 10 cm. long, 6 to 8 mm. thick, excluding the bristles. The bristles vary in length and color. Early in the season they are longer than the spikelets, but on later spikes they may be shorter than the spikelets.

Open ground and waste places, eastern United States through Mexico and the West Indies to Argentina. An excellent pasture grass. Originally described from Guadeloupe. The type locality of *Setaria ventenatii* is Porto Rico, of *Panicum penicillatum*, Brazil. Poiret gives North America and Brazil as the source of *Panicum imberbe*. Richard<sup>1</sup> refers this species to *Setaria flava* Kunth. Called in Cuba "rabo de gato," "guisasillo," and "hierba de venado."

Common throughout the West Indies.

10. *Chaetochloa hispida* Scribn. & Merr. U. S. Dept. Agr. Div. Agrost. Bull. 21: 25. f. 13. 1900.

*Setaria hispida* Schum. Just's Bot. Jahresb. 28<sup>1</sup>: 417. 1902.

Culms slender, compressed, 60 to 100 cm. tall, roughish, at least toward the summit; sheaths and blades very scabrous, sparsely hispid; panicle 8 to 15 cm. long, the bristles much exceeding the spikelets. This rare species was described as being annual, but from the two known specimens we judge it to be perennial.

In coral or limestone sands, southern Florida and Cuba. Described from Cuba, the type and only Cuban specimen collected by Wright (without number) in January, 1865, in sandy pine woods, La Grifa, Pinar del Río.

11. *Chaetochloa lutescens* (Weigel) Stuntz, U. S. Dept. Agr. Bur. Pl. Ind. Inv. Seeds 31: 83. 1912.<sup>2</sup>

*Panicum lutescens* Weigel, Obs. Bot. 20. 1772.

Much like *C. geniculata* in appearance but annual.

A weed in the garden at Cinchona, Jamaica. Common in fields and waste places in the eastern United States. Introduced from Europe, whence origi-

<sup>1</sup> In Sagra, Hist. Cuba 11: 309. 1850.

<sup>2</sup> This is the species that has been known as *Panicum glaucum*, *Setaria glauca*, and *Chaetochloa glauca*. Stuntz has shown that *Panicum glaucum* L. should apply to the species usually known as *Pennisetum americanum* (L.) Schum., *Pennisetum glaucum* (L.) R. Br.

nally described. In the United States this is called "yellow foxtail" or "pigeon grass."

12. *Chaetochloa magna* (Griseb.) Scribn. U. S. Dept. Agr. Div. Agrost. Bull. 4: 39. 1897.

*Setaria magna* Griseb. Fl. Brit. W. Ind. 554. 1864.

A robust annual, 2 meters or more tall, the succulent culms as much as 1 cm. thick, the blades commonly 50 cm. long, 1.5 to 2.5 cm. wide, the thick dense bristly spike 20 to 30 cm. long, tapering to both ends, the second glume nearly equaling the smooth fruit.

Swamps and wet soil, southeastern United States, West Indies, and Panama. Originally described from Jamaica.

Bermuda, Jamaica (Black River), Porto Rico (Laguna del Tortuguero), and Guadeloupe.

13. *Chaetochloa viridis* (L.) Scribn. U. S. Dept. Agr. Div. Agrost. Bull. 4: 39. 1897. GREEN FOXTAIL.

*Panicum viride* L. Syst. Nat. ed. 10. 2: 870. 1759.

*Setaria viridis* Beauv. Ess. Agrost. 51, 178. 1812.

Annual, branching from the base, commonly not more than 50 cm. tall; spikes 3 to 10 cm. long.

A weed in waste and cultivated ground. Common in the United States, introduced from Europe, whence originally described. Found in Bermuda. Said by Grisebach<sup>1</sup> to be naturalized in Jamaica.

*CHAETOCHLOA ITALICA* (L.) Scribn. (*Setaria italica* Beauv.), the common millet, is said by Grisebach<sup>1</sup> to be naturalized in Jamaica. In the herbarium of the New York Botanical Garden there is a specimen from Martinique (*Duss* 1315).

14. *Chaetochloa verticillata* (L.) Scribn. U. S. Dept. Agr. Div. Agrost. Bull. 4: 39. 1897.

*Panicum verticillatum* L. Sp. Pl. ed. 2. 2: 82. 1762.

*Setaria verticillata* Beauv. Ess. Agrost. 51. 1812.

Culms slender, compressed, geniculate and branching below; blades thin, lanceolate-linear; spikes short, green or purplish, the slender bristles retrorsely barbate.

A weed in fields and waste places, temperate and warmer regions of both hemispheres, introduced in America. Called in Cuba "pega-pega" and "amor seco." Originally described from southern Europe and the Orient. Found in Bermuda, Cuba (Habana), and Martinique.

15. *Chaetochloa tenacissima* (Schrad.).

*Setaria tenacissima* Schrad.; Schult. Mant. 2: 279. 1824.

*Panicum tenacissimum* Nees, Agrost. Bras. 238. 1829.

Culms slender but strong, 1 meter or more tall, leaning or clambering, the long narrow blades very scabrous, the spikes 10 to 15 cm. long, with long slender divaricate bristles and small spikelets nearly black at maturity.

Brushy hillsides, Guatemala to Brazil, whence originally described; also in Porto Rico (Utuado, *Sintenis* 6498), and Trinidad (Port of Spain, *Hitchcock* 10002).

16. *Chaetochloa scandens* (Schrad.) Scribn. & Merr. U. S. Dept. Agr. Div. Agrost. Bull. 21: 17. 1900.

*Setaria scandens* Schrad.; Schult. Mant. 2: 279. 1824.

<sup>1</sup> Fl. Brit. W. Ind. 554. 1864.

Repeatedly branching at the geniculate lower nodes, the slender culms usually 20 to 50 cm. tall, the thin blades sparsely pilose, the slender spikes 2 to 8 cm. long, about 4 mm. thick, interrupted below, the bristles ascending, exceeding the small turgid spikelets only 2 or 3 mm.

Open ground Guatemala to Paraguay; also Jamaica. Originally described from a garden specimen in Vienna, the native country unknown. A weed in fields and waste places in Jamaica, apparently introduced.

#### 48. PARATHERIA Griseb.

Inflorescence a narrow spike, the solitary spikelets appressed to slender erect branches, the ends of the branches produced beyond the spikelets as slender awns, the articulation at the base of the branch, this forming a sharp callus below the attached acuminate spikelet; glumes minute or obsolete; sterile lemma equalling the subindurate fruit.

##### 1. *Paratheria prostrata* Griseb. Cat. Pl. Cub. 236. 1866.

*Chamaeraphis parvigluma* Munro; Wright & Sauv. Anal. Acad. Cien. Habana 8: 208. 1871, nomen nudum.

*Panicum leptochyrium* Doell in Mart. Fl. Bras. 2<sup>o</sup>: 150. 1877.

A tufted decumbent perennial with sparingly branching culms 20 to 60 cm. long, pubescent nodes, sheaths, and blades, and numerous slender spikes with erect bristles and narrow acuminate spikelets about 8 mm. long.

Low moist ground near Hanábana, Cuba, whence originally described from a Wright collection in 1865, and Isle of Pines (*Curtiss* 461); also in Brazil. *Panicum leptochyrium* described from Santarem.

#### 49. PENNISETUM Pers.

Spikelets 1 to 3 together, subtended by a whorl of slender bristles (sterile branchlets), subsessile along a common axis forming bristly spikes, the bristles falling attached to the lanceolate spikelet.

Bristles naked.

Spike not over 5 cm. long, loose; spikelets about 4 mm. long.

##### 1. *P. domingense*.

Spike about 10 cm. long, compact; spikelets about 2 mm. long.

##### 2. *P. antillarum*.

Bristles or some of them plumose.

Culms low and spreading; involucre with a turbinate naked base.

##### 5. *P. ciliare*.

Culms erect, tall and rather stout; involucre with no naked base.

Spikelets about 3 mm. long, solitary in the sessile involucre.

##### 3. *P. setosum*.

Spikelets about 5 mm. long, 2 or more in the peduncled involucre.

##### 4. *P. orientale triflorum*.

##### 1. *Pennisetum domingense* (Spreng.) Spreng. Syst. Veg. 1: 302. 1825.

*Gymnothrix domingensis* Spreng.; Schult. Mant. 2: 284. 1824.

A tall glabrous perennial with elongate rigid internodes, fascicled or solitary branches, short papery sheaths, small involute blades, and small loose pale spikes.

Dry wooded slopes, eastern Cuba and Santo Domingo. Originally described from the latter.

##### 2. *Pennisetum antillarum* (Poir.) Desv. Ousc. 76. 1831.

*Panicum antillarum* Poir. in Lam. Encycl. Suppl. 4: 275. 1816.

*Saccharum? antillarum* Roem. & Schult. Syst. Veg. 2: 877. 1817.

*Setaria antillarum* Kunth, Rév. Gram. 1: 46. 1829.

This little-known species is distinguished by the slender spikes with spikelets about 2 mm. long, solitary in the involucre, the bristles naked, one being 2 or 3 times as long as the spikelet, the others about as long as the spikelet. The type specimen in the Florence Herbarium is said to have come from the "Antilles." We have seen no other specimens.

3. *Pennisetum setosum* (Swartz) Rich.; Pers. Syn. Pl. 1: 72. 1805.

*Cenchrus setosus* Swartz, Prodr. Veg. Ind. Occ. 26. 1788.

*Pennisetum alopecuroides* Desv.: Hamilt. Prodr. Pl. Ind. Occ. 11. 1825.

*Pennisetum crubescens* Desv.; Hamilt. Prodr. Pl. Ind. Occ. 11. 1825.

*Pennisetum hamiltonii* Steud. Syn. Pl. Glum. 1: 108. 1854.

A tall leafy branching perennial, erect or ascending from a geniculate base, the long flat blades pubescent or scabrous, the purplish spikes 10 to 15 cm. long, the long slender bristles at maturity spreading horizontally or slightly reflexed.

Grassy slopes and open woods, Mexico and West Indies to South America; also in tropical Asia and Africa. Originally described from the West Indies, the exact locality not indicated. *Pennisetum alopecuroides* was described from the West Indies, *P. crubescens* from St. Thomas. *Pennisetum hamiltonii* was based on *P. alopecuroides*.

Cuba (San Juan de Buenavista). St. Eustacius, Guadeloupe, Dominica, Martinique, St. Vincent, Grenada, Barbados, Trinidad, and Tobago.

4. *Pennisetum orientale triflorum* (Nees) Stapf; Hook. f. Fl. Brit. Ind. 7: 86. 1896.

*Pennisetum triflorum* Nees; Steud. Syn. Pl. Glum. 1: 107. 1854.

Culms ascending from a hard knotted crown with numerous short leafy shoots; spikes commonly 20 cm. long, the spreading turbinate involucre very feathery.

Naturalized around Cinchona, Jamaica, and escaped from cultivation on the grounds of the experiment station in Trinidad; native of India. Originally described from Nepal.

5. *Pennisetum ciliare* (L.) Link, Hort. Berol. 1: 213. 1823.

*Cenchrus ciliaris* L. Mant. Pl. 302. 1771.

*Pennisetum cenchroides* Rich. in Pers. Syn. Pl. 1: 72. 1805.

A low, spreading perennial, with short spikes of readily deciduous involucre. Originally described from Africa. Introduced in Porto Rico (La Vigia, Ponce).

## 50. CENCHRUS L.

### SAND BUR.

Spikelets 1 to 4 together, subtended and surrounded by a spiny bur formed of adnate sterile branches, the burs sessile along a common axis, falling with the spikelets and permanently inclosing them; spikelets acuminate, the first glume sometimes obsolete.

Called also "burgrass," and, in Cuba, "guizazo."

Plants perennial.

Bristles of bur separate nearly to the base; blades 20 cm. or more long.

1. *C. myosuroides*.

Bristles united at base; blades 2 to 3 cm. long ----- 2. *C. distichophyllus*.

Plants annual.

Involucre with flattened spines, no ring of slender bristles at base.

Culms erect; burs glabrous ----- 5. *C. gracillimus*.

Culms decumbent; burs pubescent.

Spines erect or ascending; burs, including spines, less than 5 mm. wide -----6. *C. microcephalus*.

Spines spreading; burs, including spines, commonly 1 cm. or more wide.

Burs, excluding spines, 5 to 6 mm. wide, finely pubescent.

3. *C. carolinianus*.

Burs, excluding spines, 8 to 10 mm. wide, densely woolly.

4. *C. tribuloides*.

Involucre with a ring of slender bristles at base.

Burs, excluding bristles, 5 to 7 mm. wide, not densely crowded; involucre lobes erect-----7. *C. echinatus*.

Burs, excluding bristles, not over 4 mm. wide, numerous, crowded in a long spike; involucre lobes interlocking-----8. *C. viridis*.

1. *Cenchrus myosuroides* H. B. K. Nov. Gen. & Sp. 1: 115. pl. 35. 1816.

*Panicum cenchroides* Ell. Bot. S. C. & Ga. 1: 111. 1816.

*Pennisetum pungens* Nutt. Gen. Pl. 1: 54. 1818.

*Cenchrus elliottii* Kunth, Rév. Gram. 1: 51. 1829.

*Cenchropsis myosuroides* Nash in Small, Fl. Southeast. U. S. 109. 1903.

Glabrous; culms sparingly branching, woody, often 2 meters tall; spikes dense, cylindrical, 12 to 20 cm. long, about 8 mm. thick, the erect involucre bristles not exceeding the spikelet.

Sandy soil, Georgia and Florida, Mexico and West Indies to South America. Originally described from Batabanó, Cuba. *Panicum cenchroides* (on which *P. pungens* and *C. elliottii* are based) was described from Georgia.

Bahamas (Inagua, Turks Island), Cuba (Santiago de Cuba), Haiti, and Porto Rico (Cabo Rojo, Mona Island).

2. *Cenchrus distichophyllus* Griseb. Cat. Pl. Cub. 234. 1866.

Culms tufted, wiry, with short internodes, overlapping sheaths, and spreading involucre rigid pungent blades, the long-exserted spike about 3 cm. long, the involucre bristles squarrose.

Sandy pine barrens, western Cuba (Guanes, Wright 3475, the type specimen, Laguna Jovero, Shafer 10717, and San Julián, León 6941).

3. *Cenchrus carolinianus* Walt. Fl. Carol. 79. 1788.

*Cenchrus echinatus* forma *longispina* Hack. Allg. Bot. Zeitschr. 9: 169. 1903.

Decumbent, freely branching at the base, the flowering culms ascending; sheaths loose; blades firm, commonly folded; spikes short-exserted, of 6 to 12 burs.

Sandy soil, throughout the United States, south to South America. Originally described from South Carolina, the forma *longispina* from Connecticut. Has been included by many authors under *Cenchrus tribuloides*.

Bahamas (Andros, Anguilla Isles, Water Key, New Providence), Cuba, Jamaica, Porto Rico, St. Thomas, Antigua, and Guadeloupe.

4. *Cenchrus tribuloides* L. Sp. Pl. 1050. 1753.

*Cenchrus tribuloides* var. *macrocephalus* Doell in Mart. Fl. Bras. 2<sup>o</sup>: 312. 1877.

*Cenchrus macrocephalus* Scribn. U. S. Dept. Agr. Div. Agrost. Bull. 17: 110. f. 406. 1899.

Similar to no. 3, rather stockier, the burs larger, woolly.

Sandy sea beaches, New Jersey to Florida, Bermuda, the Bahamas (New Providence), and Brazil. Originally described from the coast of Virginia. *Cenchrus tribuloides* var. *macrocephalus* was described from Brazil.

5. *Cenchrus gracillimus* Nash, Bull. Torrey Club 22: 299. 1895.

Differs from *C. carolinianus* in the erect more slender culms, longer narrow blades, and smaller glabrous, less crowded burs.

Sandy soil, Florida and Jamaica (southern Manchester). Originally described from central Florida.

6. *Cenchrus microcephalus* Nash, sp. nov.

Culms compressed, slender, 3 to 7 cm. long, ascending from a decumbent base; blades commonly 12 to 15 cm. long, about 2 mm. wide, sparsely pilose on the upper surface; burs about 10, scarcely 5 mm. long, erect, smaller than those of any other species of the West Indies, the flattened spines ciliate; spikelets usually 2 in each bur, 4 mm. long.

Type specimen in the herbarium of the New York Botanical Garden, collected in saline meadows, Berry Island, Bahamas, by Britton & Millspaugh (no. 2249). Known only from the Berry Islands, a second specimen collected on Frozen Cay (Britton & Millspaugh 2211).

7. *Cenchrus echinatus* L. Sp. Pl. 1050. 1753.

*Cenchrus brevisetus* Fourn. Mex. Pl. 2: 50. 1886.

Culms usually about 50 cm. long, ascending from a decumbent base, branching below; blades flat, thin, usually elongate, 5 to 10 mm. wide; spike commonly 5 to 7 cm. long. This species is extremely variable in the size of the burs and length of bristles. Small-burred specimens may be distinguished from *C. viridis* by the fewer, less-crowded burs and stiffer bristles.

Open ground and waste places. A common weed throughout the warmer parts of America. Originally described from Jamaica and Curaçao. *Cenchrus brevisetus* was described from Mexico.

To be found on probably all of the West Indian islands.

*CENCHRUS INSULARIS* Scribn. in Millsp. Field Mus. Bot. 2: 26. 1900. From Mexico to northern South America. Originally described from Alacrán Shoals off the coast of Yucatán. A single immature specimen that may belong to this species comes from Chacachacare Island, Trinidad (Hitchcock 10056). This species differs from *C. echinatus* in having larger burs with a densely villous base.

8. *Cenchrus viridis* Spreng. Syst. Veg. 1: 301. 1825.

*Cenchrus echinatus* var. *viridis* Spreng.; Griseb. Fl. Brit. W. Ind. 556. 1864.

Taller than *C. echinatus*, more upright, the spikes commonly 10 cm. long.

Open ground and waste places, Florida to Central America and the West Indies. Originally described from Guadeloupe. To be found on probably all of the West Indian islands.

51. *STENOTAPHRUM* Trin.

Spikelets 2 or 3 together in reduced racemes, these embedded in cavities along one side of a broad flat thickened corky articulate axis, the spikelets falling attached to the joints; spikelets strongly convex on the inner side; first glume minute.

1. *Stenotaphrum secundatum* (Walt.) Kuntze, Rev. Gen. Pl. 2: 794. 1891.

ST. AUGUSTINE GRASS.

*Ischaemum secundatum* Walt. Fl. Carol. 249. 1788.

*Rottboellia stolonifera* Poir. in Lam. Encycl. 6: 310. 1804.

*Stenotaphrum americanum* Schrank, Hort. Monac. pl. 98. 1811-1818.

*Stenotaphrum sarmentosum* Nees, Agrost. Bras. 93. 1829.



*Stenotaphrum glabrum* var. *americanum* Doell in Mart. Fl. Bras. 2<sup>o</sup>: 300. 1877.

*Stenotaphrum dimidiatum* var. *americanum* Hack. in Stuck. Anal. Mus. Nac.

Buenos Aires 21: 57. 1911.

An extensively creeping glabrous perennial, the stolons with long internodes and short leafy branches, the sheaths equitant, the blades short, obtuse; flowering culms 10 to 30 cm. tall, the blades commonly 10 to 15 cm. long; spikes terminal and axillary, 5 to 10 cm. long.

Open grass land, at low altitudes, especially near the coast, southern United States to South America. An excellent pasture grass. Originally described from South Carolina. *Rottboellia stolonifera* was described from Porto Rico. To be found on probably all of the West Indian islands. In Cuba called "camalote," "cambute," "gramón de costa," and "cañamazo amargo."

## 52. OLYRA L.

Plants monœcious; inflorescence paniculate; pistillate spikelets borne on the upper branches and on the ends of the lower branches of loose terminal panicles, the smaller staminate spikelets pedicellate along the lower branches; pistillate spikelets rather large; first glume wanting; second glume and sterile lemma herbaceous, caudate-acuminate; fruit bony-indurate; staminate spikelets readily deciduous; glumes and sterile lemma wanting, the lemma and palea membranaceous.

Fruit smooth and shining; plants usually over 3 meters tall-----1. *O. latifolia*.

Fruit clothed with thick silky hairs at base and summit; plants less than 1 meter tall-----2. *O. ciliatifolia*.

1. *Olyra latifolia* L. Syst. Nat. ed. 10. 2: 1261. 1759.

*Olyra paniculata* Swartz, Prodr. Veg. Ind. Occ. 21. 1788.

Glabrous perennial, bamboo-like in aspect, commonly 5 meters tall, the strong hollow culms sometimes 1 cm. thick, erect and unsupported, the summit only arching (or weaker culms leaning among brush), the lower half to two-thirds simple and naked, the short sheaths bladeless or nearly so, the elongate internodes blotched with dull purple, branching from the upper nodes, the branches commonly fascicled, divaricate, often 1 meter long, sometimes again branching; blades convolute in the bud, spreading, flat, firm, unsymmetrically lanceolate-oblong, abruptly acuminate, commonly 20 cm. long and 5 cm. wide, those of the ultimate branches smaller, the lowermost on both primary culm and branches rudimentary; panicles 10 to 15 cm. long, about two-thirds as wide, those of the secondary branches reduced, the branches stiffly ascending or spreading, each bearing a single large long-acuminate pistillate spikelet at the thickened summit and several small slender-pedicelated staminate spikelets along the rachis.

Copses and shady banks, Mexico and West Indies to South America. Originally described from Jamaica; *O. paniculata* also described from Jamaica. In Cuba this is one of the grasses called "tibisi."

A scarcely distinct form has been named *O. arundinacea* H. B. K.<sup>1</sup> (*O. latifolia* var. *arundinacea* Griseb.<sup>2</sup> This is distinguished by its glabrous sheaths and more loosely flowered green panicle. It is found in the West Indies chiefly from Porto Rico to Trinidad and extends to Brazil. Originally described from Colombia. The typical form of *O. latifolia*, with hispid sheaths and denser purple panicle, is found chiefly in Cuba and Jamaica, but extends from Mexico to Brazil. The differences mentioned above are best seen in the primary culms and panicles.

<sup>1</sup> Nov. Gen. & Sp. 1: 197. 1816.

<sup>2</sup> Fl. Brit. W. Ind. 535. 1864.

2. *Olyra ciliatifolia* Raddi, Agrost. Bras. 19. 1823.

Much smaller, the culms tufted, no strong main cane as in *Olyra latifolia*. Specimens of this lacking the base resemble specimens of *O. latifolia* consisting of branches only, but may be distinguished by the smaller narrower panicle and pubescent fruit.

Rich woods, Trinidad (Port of Spain) to Brazil. Originally described from Rio de Janeiro. Referred by Grisebach<sup>1</sup> to *O. semiovata* Trin.

53. **LITHACHNE** Beauv.

Plants monœcious; spikelets in small axillary panicles, these with a single pistillate spikelet at the summit and 1 to several staminate spikelets below; terminal panicle if present wholly staminate; first glume of pistillate spikelet wanting; second glume and sterile lemma herbaceous, long-acuminate; fruit bony-indurate, laterally subcompressed, the lemma greatly swollen or gibbous on the back, the narrow palea slightly convex; staminate spikelets reduced to the lemma and palea.

Blades 1.5 to 3 cm. wide.....1. *L. pauciflora*.

Blades less than 5 mm. wide.....2. *L. pineti*.

1. *Lithachne pauciflora* (Swartz) Beauv.; Poir. Diet. Sci. Nat. 27: 60. 1823.

*Olyra pauciflora* Swartz, Prodr. Veg. Ind. Occ. 21. 1788.

*Olyra axillaris* Lam. Encycl. 4: 547. 1797.

*Lithachne axillaris* Beauv. Ess. Agrost. 166. pl. 24. f. 11. 1812.

A tufted perennial, the slender hard culms geniculate and naked below, ascending and leafy above, commonly 30 to 50 cm. tall, the flat asymmetrical rhombic-lanceolate acuminate spreading blades usually 5 to 8 cm. long, crowded toward the summit, the small axillary panicles produced from the upper sheaths.

Moist woods up to about 2,000 meters, Mexico, Central America, and the West Indies. Originally described from Jamaica. *Olyra axillaris* was described from Cayenne. In Cuba called "pito enano."

Cuba, Jamaica, Porto Rico, Antigua, Guadeloupe, and Martinique.

2. *Lithachne pineti* (Wright) Chase, Proc. Biol. Soc. Washington 21: 182. 1908.

*Olyra pineti* Wright; Griseb. Mem. Amer. Acad. n. ser. 8: 532. 1862.

A tufted perennial, with capillary culms about 20 cm. long, naked below, bearing small flat reflexed blades above, the axillary racemes bearing 1 to few spikelets.

Only known from the type collection, Wright 1536, from "eastern Cuba."

54. **RADDIA** Bertol.

Plants monœcious; staminate and pistillate spikelets in distinct small panicles, the staminate terminal or from the upper nodes, the pistillate axillary; first glume of the pistillate spikelets wanting, the second glume and sterile lemma membranaceous, acuminate; fruit dorsally subcompressed, bony-indurate.

Fruit pubescent; blades 5 to 7 cm. long.....1. *R. biformis*.

Fruit glabrous; blades not over 4 cm. long.

Blades about 3 cm. long; fruit 6 to 7 mm. long.....2. *R. urbaniana*.

Blades 1 to 1.5 cm. long; fruit about 2 mm. long.....3. *R. nana*.

1. *Raddia biformis* sp. nov.

Perennial, rhizomatous, 15 to 30 cm. high; culms cespitose, simple, slender, ascending or erect from strongly geniculate lower nodes, striate-sulcate, with a

<sup>1</sup> Fl. Brit. W. Ind. 535. 1864.

stripe of dense short retrorse pubescence, broadening toward the summit, the sterile culms naked below and bearing 5 to 7 crowded leaves at the summit, the middle internodes elongate, the upper and lower reduced; nodes prominent, puberulent; sheaths not over 15 mm. long, the lower and those of the fertile culms with minute blades or sometimes bladeless, retrorsely puberulent along the margin and toward the summit, the upper overlapping ones more or less hirsute and with a ring of stiff hairs at the summit; ligule obsolete; blades (in dried specimens) grayish green, paler beneath, rather firm, flat, 3 to 7 cm. long, 6 to 12 mm. wide, lanceolate, rounded at the base, the apex acute, glabrous on the upper surface or with a few scattered hairs, sparsely hispid beneath, and bearing stiff hairs on the very short petiole; staminate inflorescence consisting of small spikelike panicles of 2 to 5 spikelets borne in the upper axils and at the ends of the leafy culms, the lateral spikelets staminate, subsessile, about 3 mm. long, 0.8 mm. wide, acuminate, minutely puberulent, strongly nerved, the terminal spikelets in appearance like the pistillate ones, 7 to 8 mm. long, on short obconic pedicels, neutral or with a rudimentary pistil; pistillate inflorescence consisting of small spikelike panicles of 2 or 3 fertile spikelets on short thickened pedicels and a few more or less rudimentary subsessile staminate ones borne at the ends and in the upper slightly inflated sheaths of low slender naked culms arising from the base; fertile spikelets on short thickened pedicels, 7 to 8 mm. long, 2 mm. wide, subterete, oblong-elliptic; glume and sterile lemma subequal, puberulent, strongly nerved, acuminate into short setaceous scabrous tips about 1 mm. long; fruit 6.5 mm. long, about 1.5 mm. wide, elliptic, apiculate, becoming lead-colored at maturity, clothed with soft silky appressed hairs, a glabrous stripe down the back, the margins of the lemma nearly meeting over the palea.

Type in the U. S. National Herbarium, no. 865556, collected in a rocky ravine, near Caparo, Trinidad, September 18, 1908, by W. E. Broadway (no. 2375). "A dwarf grass in sandy soil on slopes under the shade of large forest trees."

*Raddia biformis* differs from all the known species of the genus in having culms of two forms, the one with an incompletely staminate, the other with an incompletely pistillate inflorescence, and further in having pubescent fruits.

Shady forest floors, Trinidad (Tabaquite, Hitchcock 10127, St. Anns, Trin. Bot. Gard. Herb. 5892).

## 2. *Raddia urbaniana* sp. nov.

Perennial; culms caespitose (the tufts sometimes connected by a slender rhizome), 20 to 45 cm. high, slender, ascending from more or less geniculate lower nodes, striate-sulcate, bearing a narrow stripe of dense short retrorse pubescence, otherwise glabrous, naked below, with distant nearly bladeless sheaths, toward the summit bearing 12 to 24 approximate leaves with overlapping sheaths and distichous spreading blades; sheaths not over 1.5 cm. long, hispidulous along the overlapping margin; ligule minute, fimbriate; blades (in dried specimens) grayish green, thin but firm, flat, glabrous, 2 to 3.5 cm. long, 4 to 8 mm. wide, oblong-lanceolate, rounded at both ends, bearing a scabrous mucronate tip 0.5 mm. long, the petiole less than 1 mm. long; staminate panicles several to many from the axils of the upper sheaths, narrow, few-flowered, the axis and pedicels angled, scabrous, the spikelets 5 to 6 mm. long, acuminate-pointed; pistillate panicles one or two from the middle nodes, bearing 2 to 5 spikelets on short clavate pedicels; spikelets lanceolate, the glume 8 mm. long, much exceeding the fruit, the sterile lemma 5 mm. long, both acuminate-setaceous; fruit 4 mm. long, about 1 mm. wide, bluntly acuminate, white, glabrous.

Type in the U. S. National Herbarium, no. 865554, collected in the center of the island of Tobago, "abundant on the floor of deep forest on mountain,"

December 18, 1912, by A. S. Hitchcock (no. 10267). Specimens of the species were first received from Dr. I. Urban, for whom the species is named in recognition of his work on the West Indian flora.

This species is allied to the small-leaved *Raddia nana*, *R. distichophylla*, and *R. polypodioides*, but differs from them in having larger blades, and in having the fruit exceeded by the glume and sterile lemma.

Only known from Tobago (The Widow, Broadway 3004, 4360, and Eggers 5841, besides the type collection).

3. *Raddia nana* (Doell) Chase, Proc. Biol. Soc. Washington 21: 185. 1908.

*Olyra nana* Doell in Mart. Fl. Bras. 2<sup>a</sup>: 329. 1877.

A tufted straggling perennial with delicate, nearly simple culms 10 to 30 cm. long, naked below, the small flat oblong-triangular spreading or deflexed blades 10 to 12 mm. long, 5 to 7 mm. wide, bearing at the rounded apex a minute mucronate tip, approximate along the upper part of the culm, the small few-flowered axillary racemes scarcely exerted from the upper sheaths.

Wet sandy savannas, Trinidad (Aripo Savanna, Cumuto Station) to Brazil, whence originally described.

## 55. MNIOCHLOA Chase.

Plants diœcious; inflorescence a pair of slender racemes, one pistillate, the other staminate, at the summit of a naked culm; pistillate spikelets sessile; first glume wanting; second glume and sterile lemma subequal, obtuse, or subacute; fruit white, cartilaginous, subindurate; staminate spikelets smaller, reduced to the lemma and palea.

Flowering culms much exceeding the sterile ones; fruit glabrous.

### 1. *M. pulchella*.

Flowering and sterile culms about equal in height; fruit pubescent.

### 2. *M. strephioides*.

1. *Mniochloa pulchella* (Griseb.) Chase, Proc. Biol. Soc. Washington 21: 186. pl. 4. 1908.

*Digitaria pulchella* Griseb. Cat. Pl. Cub. 231. 1866.

*Strepium? pulchellum* Wright, Anal. Acad. Cienc. Habana 8: 202. 1871.

A delicate tufted perennial, the capillary naked flowering culms 10 to 25 cm. tall, ascending from a geniculate base, the racemes 2 to 3 cm. long, the prostrate leafy sterile culms 6 to 10 cm. long, the flat spreading lanceolate-oblong blades 10 to 12 mm. long, about 5 mm. wide.

On precipices, eastern Cuba. Only known from the type collection, Wright 3448, from El Yunque de Baracoa, Cuba.

2. *Mniochloa strephioides* (Griseb.) Chase, Proc. Biol. Soc. Washington 21: 186. 1908.

*Olyra strephioides* Griseb. Cat. Pl. Cub. 229. 1866.

Less delicate than *M. pulchella*, the flowering culms 5 to 8 cm. tall, the racemes 1.5 to 2 cm. long, the sterile leafy culms as much as 20 cm. long.

Damp slopes, western Cuba, whence originally described, Wright 3435 being the type specimen. Also found near San Diego de los Baños (León 4391, 4572, 4593) and Campo Florido (León 4140).

## 56. PHARUS L.

Spikelets in pairs, appressed along the slender spreading, nearly simple panicle branches, one pistillate, sessile, the other staminate, pedicellate, much smaller than the pistillate spikelet; fertile lemma subindurate, terete,

clothed, at least toward the beaked apex, with thick uncinat hairs; blades with fine transverse veins between the longitudinal nerves, petioled (the petiole with a single twist reversing the upper and under surfaces of the blade), the nerves running from midnerve to margin.

Culms creeping at base-----2. *P. parvifolius*.  
Culms erect or nearly so.

Fruit pubescent only at tip, slightly exceeding the glumes.

3. *P. latifolius*.

Fruit pubescent all over, 2 to 3 times as long as the glumes---1. *P. glaber*.

1. *Pharus glaber* H. B. K. Nov. Gen. & Sp. 1: 196. 1816.

*Pharus brasiliensis* Raddi, Agrost. Bras. 21. 1823.

*Pharus lancifolius* Desv.; Hamilt. Prodr. Pl. Ind. Occ. 8. 1825.

An erect glabrous perennial 50 to 75 cm. tall, with flat oblanceolate acuminate blades commonly 15 to 25 cm. long and 3 to 5 cm. wide, and large open fragile panicles, the few branches stiffly ascending or spreading, the appressed oblong brown spikelets about 1 cm. long, the fruit densely clothed with hooked hairs, the panicles readily breaking up, the pieces attaching themselves by the hooked hairs to passing objects.

Rich woods, Mexico and West Indies to Brazil. Originally described from Venezuela; *P. brasiliensis* described from Rio de Janeiro and *P. lancifolius* from the Antilles. Found throughout the Greater Antilles and in the Lesser Antilles as far south as St. Vincent.

2. *Pharus parvifolius* Nash, Bull. Torrey Club 35: 301. 1908.

Creeping at base, the blades on the average smaller and less broadened upward, otherwise like the preceding.

Rich woods, West Indies. Originally described from Haiti, the type being Nash & Taylor 1482, collected at "Les Roches, a few miles to the west of Plaisance."

Cuba (Banao Hills, Santa Clara, and Loma del Jaguey, Oriente), Jamaica (Ramble, near Claremont), Haiti, Porto Rico (Arecibo), and Trinidad (Tabaquite and Tamana).

3. *Pharus latifolius* L. Syst. Nat. ed. 10. 2: 1269. 1759.

*Pharus ovalifolius* Desv.; Hamilt. Prodr. Pl. Ind. Occ. 8. 1825.

Similar to no. 1, the blades on the average broader, the spikelets longer, the summit of the fruit tapering.

Rich woods, West Indies to Brazil. Sometimes called "wild oats." Originally described from Jamaica; *P. ovalifolius* described from the Antilles.

Cuba (Province of Pinar del Rio), Jamaica (Bath), Haiti, Santo Domingo, Guadeloupe, Martinique, St. Vincent, Grenada, and Trinidad.

## 57. LUZIOLA Gmel.

Pistillate and staminate spikelets in separate panicles; glumes wanting; caryopsis with a thick hard pericarp.

Blades 7 to 10 mm. wide; inflorescence many-flowered-----3. *L. spruceana*.

Blades 1 to 3 mm. wide; inflorescence few-flowered.

Fruit 2 mm. long-----2. *L. bahiensis*.

Fruit 1.5 mm. long-----1. *L. peruviana*.

1. *Luziola peruviana* Gmel. Syst. Nat. 637. 1791.

Similar to *L. bahiensis* but the inflorescence more delicate and the spikelets smaller, the fruit about 1.5 mm. long.

Wet ground, southern United States to Uruguay and Peru, whence originally described. Grisebach<sup>1</sup> records this species from Trinidad, but to us it is known from the West Indies only from Cuba (Lagoon Haiti, Mordazo, *León* 5941).

2. *Luziola bahiensis* (Steud.) Hitchc. Contr. U. S. Nat. Herb. 12: 234. 1909.

*Caryochloa bahiensis* Steud. Syn. Pl. Glum. 1: 5. 1854.

*Luziola alabamensis* Chapm. Fl. South. U. S. 564. 1800.

*Luziola longivalvula* Doell in Mart. Fl. Bras. 2<sup>o</sup>: 17. 1871.

A slender glabrous stoloniferous aquatic perennial with long linear blades (or aerial blades shorter and 4 to 5 mm. wide), narrow staminate panicles terminating the main culm, and open few-flowered pistillate panicles terminating the branches. Extremely variable in appearance according to the depth of water in which the specimen grew. Plants growing in places from which water has receded are low and widely creeping.

Rivulets, Alabama to Brazil. Originally described from Bahia.

Also in Cuba (Pinar del Río, *Wright* 3813).

3. *Luziola spruceana* Benth.; Doell in Mart. Fl. Bras. 2<sup>o</sup>: 18. 1871.

Culms thick, soft and spongy, freely branching; sheaths broad with long erect auricles; staminate panicles terminal; pistillate panicles terminal and axillary, corymbose, the numerous branches reflexed at maturity.

Ponds and lagoons, Cuba to Brazil, whence originally described. Called "pond-grass" in Trinidad.

Cuba (Ariguanabo Lagoon, *León* 4193), Trinidad (probably near Caroni River, *Broadway* 1626), and Tobago (The Whim, *Broadway* 3100).

## 58. ORYZA L.

Spikelets perfect, paniculate, laterally compressed; glumes minute; lemma and palea subindurate, papillose-roughened, the lemma awned (the awn sometimes obsolete).

1. *Oryza latifolia* Desv. Jour. de Bot. Desv. 1: 77. 1813.

*Oryza sativa* var. *latifolia* Doell in Mart. Fl. Bras. 2<sup>o</sup>: 7. 1871.

A rather robust perennial, the simple culms 2 meters or more tall, with thin flat scabrous blades commonly 50 to 60 cm. long and 4 to 5 cm. wide, and large many-flowered panicles, the short-awned spikelets short-pedicel along the upper half to two-thirds of the long slender ascending branches.

Swamps and ditches, Central America and West Indies to Brazil. Type locality given as Carolina and Porto Rico, the first clearly an error. The awn is described by Desvaux as being "brevissima." Later Hamilton<sup>2</sup> described the species from a specimen in Desvaux's herbarium without mentioning the awn. The habitat is here given as "in parte Hispanica Hispaniolae."

Haiti (Bayeux), Porto Rico (Mayaguez), and Trinidad (St. Joseph, Cedros).

ORYZA SATIVA L. Sp. Pl. 333. 1753. CULTIVATED RICE. ARROZ. This plant is cultivated throughout the West Indies and is occasionally found growing spontaneously in fields and ditches.

## 59. HOMALOCENCHRUS Mieg.

Spikelets awnless, the glumes wanting, otherwise as in *Oryza*, the plants and spikelets much smaller.

<sup>1</sup> Fl. Brit. W. Ind. 535. 1864.

<sup>2</sup> Prodr. Pl. Ind. Occ. 7. 1825.

Panicle contracted, the branches ascending, spikelet-bearing from near the base; spikelets hispid -----1. *H. hexandrus*.

Panicle open, the branches slender, spreading, naked below; spikelets smooth or sometimes sparsely hispid.

Spikelets 2 mm. long; blades about 5 mm. wide-----2. *H. monandrus*.

Spikelets 2.5 mm. long; blades 1 to 2 cm. wide-----3. *H. grandiflorus*.

1. *Homalocenchrus hexandrus* (Swartz) Kuntze, Rev. Gen. Pl. 2: 777. 1891.

*Leersia hexandra* Swartz, Prodr. Veg. Ind. Occ. 21. 1788.

*Oryza hexandra* Doell in Mart. Fl. Bras. 2<sup>o</sup>: 10. 1871.

A scabrous aquatic perennial, the slender culms often 2 meters tall, erect from a creeping base, the flat blades mostly 15 to 20 cm. long and about 8 mm. wide, the many-flowered panicle pale or purplish. Extensively creeping stolons with short blades are sometimes produced in land bordering ponds and ditches.

Swamps and ditches, southern United States to South America. Originally described from Jamaica.

Cuba, Jamaica, Santo Domingo, Porto Rico, Martinique, and Trinidad.

2. *Homalocenchrus monandrus* (Swartz) Kuntze, Rev. Gen. Pl. 2: 777. 1891.

*Leersia monandra* Swartz, Prodr. Veg. Ind. Occ. 21. 1788.

*Paspalum cubense* Spreng. Neu. Entd. 3: 12. 1822.

*Leersia aspera* Nees; Trin. Mém. Acad. St. Pétersb. VI. Sci. Nat. 3<sup>1</sup>: 168. 1849, as synonym of *Leersia monandra*.

*Oryza monandra* Doell in Mart. Fl. Bras. 2<sup>o</sup>: 9. 1871.

A densely tufted erect perennial with wiry culms and long linear scabrous, often grayish blades, the few very slender remote panicle branches spreading at maturity, bearing small pale suborbicular imbricate spikelets at the ends.

Rocky woods, southern Florida to Brazil. Originally described from Jamaica. *Paspalum cubense* was described from Cuba and neighboring islands. In Cuba called "hierba de venado" and "guinea cimarrona."

Cuba, Jamaica, Haiti, Santo Domingo, and Porto Rico (in the drier hills along the south coast).

3. *Homalocenchrus grandiflorus* (Doell) Hitchc. Contr. U. S. Nat. Herb. 17: 273. 1913.

*Oryza monandra grandiflora* Doell in Mart. Fl. Bras. 2<sup>o</sup>: 9. 1871.

Like the preceding in habit but much larger and stouter, the blades 1 to 2 cm. wide, the panicle branches commonly 15 cm. long.

Shady bank, Veracruz to South America; also in the Lesser Antilles. Originally described from Brazil.

Guadeloupe (*Duss* 3146) and Martinique (*Duss* 775).

## 60. REYNAUDIA Kunth.

Spikelets perfect; glumes strongly nerved, awned from between the lobes of the notched summit; lemma awn-tipped from the bilobed apex.

1. *Reynaudia filiformis* Kunth, Rév. Gram. 1: 195. 1829.

*Polypogon filiformis* Spreng.; Kunth, loc. cit. as synonym.

*Polypogon cubensis* A. Rich. in Sagra, Hist. Cuba 11: 313. 1850.

A tufted glabrous perennial with erect or ascending subfiliform culms 15 to 40 cm. tall, bearded nodes, short involute blades mostly clustered at the base, and small rather densely flowered panicles.

Savannas and moist places, western Cuba, Jamaica, and Hispaniola. Originally described from Santo Domingo. *Polypogon cubensis* was described from Cuba.

61. *STREPTOCHAETA* Schrad.

Spikelets subsessile on a slender flexuous axis, perfect, one of the sterile lemmas extending into a long smooth filiform tendril-like coiled awn, the tips of all the awns apparently attached to the prolonged summit of the axis; stigmas 3. An anomalous genus of doubtful relationship.

1. *Streptochaeta spicata* Schrad.; Nees. Agrost. Bras. 537. 1829.

An erect perennial, with broad thin elliptical blades and spikes of distant appressed elongate-conic spikelets with tendril-like awns.

In the shade of the forest, Brazil, whence originally described, to Trinidad (Caparo Forest, *Broadway* 4929).

62. *PHALARIS* L.

Spikelets strongly compressed, the keeled glumes exceeding the subindurate perfect floret and attached sterile lemmas.

1. *Phalaris canariensis* L. Sp. Pl. 54. 1753.

CANARY GRASS.

An erect annual with flat blades and ovoid heads, the papery imbricate spikelets whitish with green stripes.

Originally described from Europe, but widely distributed as a weed of waste places. Found in Bermuda and Cuba (Habana).

63. *ANTHOXANTHUM* L.

Glumes very unequal; sterile lemmas awned, exceeding the small awnless perfect floret.

1. *Anthoxanthum odoratum* L. Sp. Pl. 28. 1753.

SWEET VERNAL GRASS.

A tufted fragrant perennial with flat blades and loosely spikelike panicles commonly about 5 cm. long.

A native of Europe, occasionally cultivated in the United States and escaped from cultivation. Introduced in the vicinity of Cinchona, Jamaica. Originally described from Europe.

64. *ARISTIDA* L.

Spikelets in close or open panicles; glumes acuminate; lemma convolute, subindurate with a pointed callus and bearing from the apex a trifid awn.

Plants annual.....1. *A. adscensionis*.

Plants perennial.

Lateral awns minute or wanting.....9. *A. scabra*.

Lateral awns about as long as the middle one.

Panicle a dense bristly spike; fruit with a twisted neck 1 cm. long.

7. *A. spiciformis*.

Panicle open or contracted, not a dense spike; neck of fruit short or none.

Plants robust, more than 1 meter tall; blades as much as 50 cm. long and 4 mm. wide, very scabrous.....8. *A. erecta*.

Plants slender, usually less than 50 cm. tall; blades not over 2 mm. wide, smooth or slightly scabrous.

Awns or some of them 2 to 3 cm. long; blades sparsely pilose on the upper surface toward the base...6. *A. portoricensis*.

Awns mostly less than 1.5 cm. long.

Culms usually widely spreading; spikelets crowded on the short panicle branches.....2. *A. cognata*.



Culms erect or ascending; spikelets sometimes approximate but not crowded.

Culms rigid and wiry, bearing fascicled branches; leaves commonly in pairs, the blades usually short and rigid-----3. *A. curtifolia*.

Culms not rigid, simple or sparingly branching, the branches not fascicled.

Blades involute-setaceous, commonly clustered at the base-----4. *A. refracta*.

Blades flat, about 1 mm. wide, with a thick cartilaginous marginal band----5. *A. gyrans*.

1. *Aristida adscensionis* L. Sp. Pl. 82. 1753.

*Aristida humilis* H. B. K. Nov. Gen. & Sp. 1: 121. 1816.

*Aristida bromoides* H. B. K. Nov. Gen. & Sp. 1: 122. 1816.

*Aristida maritima* Steud. Syn. Pl. Glum. 1: 137. 1854.

A densely tufted glabrous annual, the slender wiry culms ascending or erect from a geniculate base, freely branching from the lower nodes, the narrow blades commonly involute, the nodding panicles about 10 to 15 cm. long, the slender branches short, appressed, or sometimes the lower 5 cm. or more long, spreading and flexuous, the spikelets short-pedicel, mostly clustered, the equal awns 12 to 20 cm. long. Extremely variable in appearance, ranging from dwarf plants with narrow compact panicles to larger plants, as much as 70 cm. tall, with flexuous panicles.

Open dry ground and waste places, throughout the warmer parts of America and the Old World. Originally described from the Island of Ascension. *Aristida humilis* was described from Cumaná, Venezuela; *Aristida bromoides* from Ecuador, and *Aristida maritima* from Guadeloupe. This species has been commonly referred to *A. dispersa* Trin. & Rupr.<sup>1</sup> and is one of the forms the authors unite under this name. Grisebach<sup>2</sup> refers this species to *A. stricta* Michx.

Bahamas (Crooked Island, Long Cay, Long Island), Jamaica (in the vicinity of Kingston), Haiti, Santo Domingo, Porto Rico (along the southwestern coast and on Mona Island), St. Croix, St. Jan, Antigua, Montserrat, and Guadeloupe.

2. *Aristida cognata* Trin. & Rupr. Mém. Acad. St. Pétersb. VI. Sci. Nat. 5': 127. 1842.

*Aristida swartziana* Steud. Syn. Pl. Glum. 1: 137. 1854.

Culms tufted, slender, wiry, spreading, 15 to 30 cm. long, branching from the lower nodes; blades flat or involute, flexuous, densely scabrous and sparsely long-villous on the upper surface; panicles narrow, the short branches ascending, the spikelets clustered. Resembling short-awned specimens of *A. adscensionis* but usually taller and distinguishable by the perennial base.

Stony ground, southern Jamaica, Porto Rico (Boqueron), St. Thomas, whence originally described, and St. Croix. *Aristida swartziana* was described from Jamaica. Grisebach<sup>2</sup> refers this species to *A. purpurascens* Poir.

3. *Aristida curtifolia* Hitchc. Contr. U. S. Nat. Herb. 12: 235. 1909.

Culms densely tufted, wiry, rigid, 30 to 50 cm. tall, with fascicled branches; alternate internodes commonly shortened, bringing the leaves together in pairs, the blades involute, rigid, mostly short and spreading; panicles few-flowered, 3 to 10 cm. long, the awns about 12 mm. long.

<sup>1</sup> Mém. Acad. St. Pétersb. VI. Sci. Nat. 5': 129. 1842.

<sup>2</sup> Fl. Brit. W. Ind. 534. 1864.

Dry, rocky, or gravelly hills, throughout Cuba, whence originally described, *Wright* 736 from eastern Cuba being the type.

4. *Aristida refracta* Griseb. Cat. Pl. Cub. 228. 1866.

Culms densely tufted, wiry, ascending, 30 to 50 cm. tall, sparingly branching from the lower nodes; leaves mostly clustered at the base, the blades involute-setaceous, flexuous, commonly 10 cm. long (the one or two culm blades usually very short); panicles narrow, the short, rather distant branches ascending, the short-pediceled spikelets approximate; glumes about 5 mm. long, usually dark, the loosely twisted awns about 12 mm. long.

Dry savannas, Florida and the Greater Antilles. Originally described from Cuba, the type being *Wright* 3431 from Chirigote. In the type specimen the second glume is mucronate from a notched tip, and the leaves are not conspicuously clustered at the base. The specimens from Guanabacoa, Cuba, and from Jamaica and Porto Rico have entire glumes and leaves conspicuously clustered at the base. These may represent a distinct species.

Cuba (Province of Pinar del Río, Guanabacoa, Manajabo, and in the Province of Oriente), Jamaica (southern Manchester), and Porto Rico (Boqueron and Guanajibo).

5. *Aristida gyrans* Chapm. Bot. Gaz. 3: 10. 1878.

Culms caespitose, erect, wiry, glabrous, 30 to 70 cm. tall, simple or sparingly branching from the lower nodes; blades flat or the heavy margins incurved, 3 to 5 cm. long, about 1 mm. wide, a thickened ridge just inside the margin, the thickening particularly noticeable from the under side; panicles narrow, 5 to 15 cm. long, the branches short, appressed, few-flowered; spikelets short-pediceled, approximate; glumes 5 to 7 mm. long, the first slightly shorter than the second; lemma about as long as the glumes, the loosely twisted awns about equal, 10 to 12 mm. long, or the central as much as 15 mm. long.

Low, sandy soil, Florida, whence described, to Hispaniola.

Bahamas (New Providence), Cuba (Herradura, Isle of Pines), Haiti, and Santo Domingo.

6. *Aristida portoricensis* Pilger in Urban, Symb. Antill. 4: 100. 1903.

In large tufts, the slender wiry culms erect from a geniculate base, 30 to 50 cm. tall, finally branching; blades involute-setaceous, 5 to 8 cm. long; panicles rather loosely flowered, the branches ascending or spreading, a nearly sessile spikelet commonly in the axil, the short-pediceled approximate rust-colored spikelets about 12 mm. long excluding the awns, the summit of the lemma exceeding the glumes, the spreading awns 2 to 2.5 cm. long.

Open rocky slopes, Monte Mesa, western Porto Rico, whence described, the type specimen being *Sintenis* 77.

7. *Aristida spiciformis* Ell. Bot. S. C. & Ga. 1: 141. 1816.

Culms tufted, wiry, stiffly erect; blades involute; panicle 10 to 15 cm. long, densely flowered, very bristly and suggesting a spiral by reason of the long necks of the fruit all twisted in one direction.

Pine barrens, southeastern United States; also in Porto Rico (white sand barren, Campo Alegre, *Chase* 6614) and the Isle of Pines (*Britton, Britton & Wilson* 14198). Originally described from South Carolina or Georgia, presumably from the former.

8. *Aristida erecta* Hitchc. Contr. U. S. Nat. Herb. 12: 236. 1909.

Culms erect, rather stout, 1 to 2 meters tall, with long involute scabrous blades and long nodding panicles with ascending branches, the spikelets rather crowded, the awns about 2.5 cm. long.

Pine barrens, western Cuba, whence described, the type being *Wright* 3432.

9. *Aristida scabra* (H. B. K.) Kunth, Rév. Gram. 1: 62. 1829.*Streptachne scabra* H. B. K. Nov. Gen. & Sp. 1: 124. pl. 40. 1816.*Streptachne cubensis* A. Rich. in Sagra, Hist. Cuba 11: 311. 1850.

Culms densely tufted, compressed, wiry, 0.5 to 1 meter tall; leaves numerous, the blades mostly not over 2 mm. wide, involute; panicle usually about one-third the height of the plant, the few slender branches spreading at maturity, the short-pedicled appressed spikelets about 3 cm. long including the curved awn; lateral awns minute.

Open dry or stony ground, Florida, Bahamas (New Providence and Inagua), and western Cuba. Originally described from Mexico; *S. cubensis* described from Cuba. Two Bahama specimens, *Curtiss* 75 and *Nash & Taylor* 926, have more clustered spikelets with strongly curved awns as in *Streptachne floridana* Chapm.,<sup>1</sup> described from Key West, a form known only from the type collection, having ascending panicle branches, crowded spikelets, and conspicuously curved awns, probably not specifically distinct from *A. scabra*.

65. *MUHLENBERGIA* Schreb.

Spikelets paniculate; lemma bearing a long delicate awn.

1. *Muhlenbergia capillaris* (Lam.) Trin. Gram. Unifl. 191. 1824.*Stipa capillaris* Lam. Tabl. Encycl. 1: 158. 1791.

A densely tufted perennial with slender more or less twisted and flexuous simple culms 40 to 70 cm. tall, and numerous long fine involute blades, commonly overtopping the large purplish panicles, the numerous capillary fascicled branches bearing small delicately awned spikelets on long capillary pedicels.

Rocky soil, Massachusetts to Texas, eastern Mexico, and the northern islands of the West Indies. Originally described from Carolina.

Bahamas (Andros, New Providence), Cuba, and Porto Rico (junction of Rio Arcibo and Rio Limon).

66. *PHLEUM* L.

Spikelets strongly compressed; glumes abruptly mucronate, stiffly ciliate on the keel, exceeding the awnless floret.

1. *Phleum pratense* L. Sp. Pl. 59. 1753.

TIMOTHY.

A tufted perennial 0.5 to 1 meter tall with flat blades and a dense cylindrical head 5 to 10 cm. long, about 8 mm. thick.

Commonly cultivated as a meadow grass in temperate regions. Originally described from Europe. Established on the summit of Blue Mountain Peak, around the "cabin."

67. *SPOROBOLUS* R. Br.

Spikelets in spikelike or open panicles, awnless; glumes shorter than the floret; palea readily splitting; pericarp of the caryopsis loose, the seed readily falling therefrom.

Plants annual.....1. *S. muralis*.

Plants perennial.

Creeping rhizomes present.

Culms rarely over 40 cm. tall.....6. *S. virginicus*.Culms commonly 70 cm. or more tall.....7. *S. littoralis*.<sup>1</sup> Fl. South. U. S. 554. 1860.

Creeping rhizomes wanting.

Panicle large and diffuse, at least half the entire height of the plant.

2. *S. brasiliensis*.

Panicle narrow, contracted or if somewhat open not diffuse, less than one-third the entire height of the plant.

Glumes much shorter than the spikelet.

Panicle branches slender, rather loosely arranged; blades slender and lax; glumes about 0.3 mm. long, nearly equal.

8. *S. indicus*.

Panicle branches short, contiguous, forming a narrow, rather compact spike; blades firm, as much as 5 mm. wide; glumes 0.5 to 1 mm. long, unequal-----9. *S. berterioanus*.

Glumes unequal, the second as long as the spikelet.

Spikelets about 1.5 mm. long; panicle pyramidal.

Lowermost panicle branches several in a whorl; sheaths hairy in the throat-----3. *S. argutus*.

Lowermost panicle branches in 1's or 2's; sheaths glabrous in the throat -----4. *S. atrovirens*.

Spikelets 2 to 4 mm. long; panicle elongate-oblong.

Panicle green or whitish; spikelets about 2 mm. long.

5. *S. domingensis*.

Panicle purple; spikelets 2.5 to 4 mm. long.

Basal sheaths copiously felty-ciliate; spikelets 3.5 to 4 mm. long-----11. *S. cubensis*.

Basal sheaths not felty; spikelets 2.5 mm. long.

10. *S. purpurascens*.

# 1. *Sporobolus muralis* (Raddi).

*Agrosticula muralis* Raddi, Agrost. Bras. 33. pl. 1. f. 2. 1823.

A slender pale glabrous ascending annual, 30 to 70 cm. tall, with compressed culms, flat blades 2 to 3 mm. wide, and narrow, loosely flowered panicles about half the entire length of the plant, the delicate branches ascending, the minute spikelets long-pedicelcd.

Waste ground, Lesser Antilles to Brazil. Originally described from Rio de Janeiro.

St. Croix, Tortola, Martinique, and St. Lucia.

# 2. *Sporobolus brasiliensis* (Raddi) Hack. Bull. Herb. Boiss. II. 4<sup>t</sup>: 278. 1904.

*Aira brasiliensis* Raddi, Agrost. Bras. 36. 1823.

*Eragrostis airoides* Nees, Agrost. Bras. 509. 1829.

Culms erect, commonly 1 meter tall, the long blades more or less involute, scabrous on the upper surface; panicles rather more than half the entire length of the plant, the numerous branches and branchlets subcapillary, flexuous, ascending or spreading, the minute spikelets often 2-flowered.

Savannas, Brazil; also in Cuba (Chirigote, Sumidero). Originally described from Rio de Janeiro. *Eragrostis airoides*, based on a 2-flowered form, was also described from Brazil.

# 3. *Sporobolus argutus* (Nees) Kunth, Enum. Pl. 1: 215. 1833.

?*Agrostis pyramidata* Lam. Tabl. Encycl. 1: 161. 1791, not *Sporobolus pyramidalis* Beauv. 1807.

?*Sporobolus affinis* Kunth, Rév. Gram. 1: 68. 1829.

*Vilfa arguta* Nees, Agrost. Bras. 395. 1829.

*Vilfa richardi* Steud. Syn. Pl. Glum. 1: 153. 1854.

*Agrostis pyramidalis* A. Rich.; Steud. Syn. Pl. Glum. 1: 153. 1854, as synonym.

? *Vilfa affinis* Steud. Syn. Pl. Glum. 1: 161. 1854.

A low tufted glabrous perennial with spreading culms, rather thick subinvolute short blades, and pale many-flowered panicles, at first contracted, at maturity narrowly pyramidal or oblong.

Open sandy or alkaline soil, southwestern United States to South America. Originally described from Brazil.

Bahamas (Fortune Island), Cuba, Jamaica, Haiti, Santo Domingo, Porto Rico, St. Croix, Antigua, and Trinidad.

4. *Sporobolus atrovirens* (H. B. K.) Kunth, Rév. Gram. 1: 68. 1829.

*Vilfa atrovirens* H. B. K. Nov. Gen. & Sp. 1: 138. 1816.

*Sporobolus bahamensis* Hack. Oesterr. Bot. Zeitschr. 52: 56. 1902.

Similar to the preceding, erect or ascending, the leaves more aggregated at the base, the panicle branches longer.

Open rocky soil, Mexico; also in the Bahamas. Originally described from the Valley of Mexico. *Sporobolus bahamensis* was described from Acklin Island, Eggers 3905 being the type. The author distinguishes the species by its monandrous florets, but we find only one stamen in any of the specimens examined of *S. atrovirens* from Mexico, including those of the type collection made by Humboldt. In the West Indies found only on Acklin Island.

5. *Sporobolus domingensis* (Trin.) Kunth, Enum. Pl. 1: 214. 1833.

*Vilfa domingensis* Trin. in Spreng. Neu. Entd. 2: 59. 1821.

*Agrostis domingensis* Schult. Mant. 3: 570. 1827.

We have not been able to verify the last reference.

Resembling no. 3 but larger, the culms commonly 40 cm. tall, the panicles contracted, densely flowered.

Sandy or alkaline soil, Bahamas and Greater Antilles. Originally described from Santo Domingo.

Bahamas (Anguilla Isles, New Providence, Fortune Island), eastern Cuba, and Porto Rico (Cabo Rojo, *Sintenis* 549b, an immature specimen doubtfully referred).

6. *Sporobolus virginicus* (L.) Kunth, Rév. Gram. 1: 67. 1829.

*Agrostis virginica* L. Sp. Pl. 63. 1753.

*Vilfa virginica* Beauv. Ess. Agrost. 16, 182. 1812.

Culms 15 to 40 cm. tall, erect from extensively creeping hard scaly rhizomes, the numerous leaves conspicuously distichous, the sheaths overlapping, the blades firm, involute-pointed; panicles spikelike, commonly not over 5 cm. long. Extensive colonies of sterile plants often found along sandy beaches.

Saline soil along the coast, Virginia to Brazil. Originally described from Virginia. Common throughout the West Indies.

7. *Sporobolus littoralis* (Lam.) Kunth, Rév. Gram. 1: 68. 1829.

*Agrostis littoralis* Lam. Tabl. Encycl. 1: 161. 1791.

Similar to the preceding but larger throughout, the culms commonly 70 cm., sometimes 1 meter, tall, the panicles as much as 15 cm. long. Possibly not specifically distinct from *S. virginicus*.

Saline marshes and sea beaches, West Indies to Brazil. Originally described from tropical America.

Bermuda, Cuba, Porto Rico, Guadeloupe, Grenada, Barbados, Trinidad, and Tobago.

8. *Sporobolus indicus* (L.) R. Br. Prodr. Fl. Nov. Holl. 1: 170. 1810.

*Agrostis indica* L. Sp. Pl. 63. 1753.

*Sporobolus lamarchii* Hamilt. Prodr. Pl. Ind. Occ. 4. 1825.

*Sporobolus jacquemontii* Kunth, Rév. Gram. 2: 427. pl. 127. 1831.

*Vilfa jacquemontii* Trin. Mém. Acad. St. Pétersb. VI. Sci. Nat. 4<sup>1</sup>: 92. 1840.

*Vilfa indica* Trin.; Steud. Nom. Bot. ed. 2. 2: 767. 1841.

Culms erect, 0.6 to 1 meter tall, in large clumps with numerous leafy shoots at the base; panicle 15 to 30 cm. long, the slender branches ascending, the short-pedicelled spikelets mostly borne along the lower side. Often forming an almost pure stand on open slopes, an important constituent of native pastures.

Grassy hills and dry savannas, Bahamas and Mexico to northern South America. Originally described from Jamaica. *Sporobolus lamareckii* was described from "India Occidentali" and *S. jacquemontii* from Santo Domingo. Found throughout the West Indies. In Cuba called "espartillo" and "espartillo fino."

#### 9. *Sporobolus berterioanus* (Trin.).

?*Agrostis tenuissima* Spreng. Syst. Veg. 1: 258. 1825, not *Sporobolus tenuissimus* (Schrank) Kuntze, 1898.

*Vilfa berterioana* Trin. Mém. Acad. St. Pétersb. VI. Sci. Nat. 4<sup>1</sup>: 100. 1840.

*Sporobolus angustus* Buckl. Proc. Acad. Phila. 1862: 88. 1862.

Resembling the preceding, the panicle narrower, the shorter densely flowered branches erect. The abundant reddish ripe grains extruded from the glumes often remain attached to the panicle by their mucilaginous coats.

Open, mostly moist ground and waste places, southern United States to South America, apparently introduced in the West Indies. Originally described from Santo Domingo; *Agrostis tenuissima* described from the West Indies, and *S. angustus* from Texas. This species has been included with the preceding under *Sporobolus indicus*, and by some botanists<sup>1</sup> has been described as *Sporobolus indicus*, while the preceding species has been distinguished as *Sporobolus jacquemontii*. Often affected by a black fungus.

Bermuda, Bahamas (New Providence), Cuba, Jamaica, Porto Rico, St. Croix, St. Jan, Tortola, Antigua, Montserrat, Guadeloupe, Martinique, Grenada, Trinidad, and Tobago.

#### 10. *Sporobolus purpurascens* (Swartz) Hamilt. Prodr. Pl. Ind. Occ. 5. 1825.

*Agrostis purpurascens* Swartz, Prodr. Veg. Ind. Occ. 25. 1788.

*Vilfa purpurascens* Beauv. Ess. Agrost. 16, 182, 1812.

*Vilfa grisebachiana* Fourn. Mex. Pl. 2: 98. 1886.

Culms slender, erect, tufted, with numerous short leaves at base, naked above, the blades flat, rather thin; panicle 10 to 15 cm. long, the short branches in usually rather distant whorls, spikelet-bearing to the base.

Grassy slopes, southern United States, eastern Mexico, Cuba (Province of Pinar del Río), and Jamaica (Blue Mountains). Originally described from Jamaica. The type of *Vilfa grisebachiana* is Wright 3427 from Cuba.

#### 11. *Sporobolus cubensis* Hitchc. Contr. U. S. Nat. Herb. 12: 237. 1909.

Differs from the preceding in having long firm involute blades and pyramidal panicles, the branches commonly 2 to 3 cm. long, naked at base.

Sandy barrens, Cuba (Province of Pinar del Río and Isle of Pines) and Porto Rico (Mayaguez, Heller 4590); also in Venezuela. Originally described from Isle of Pines, the type being Curtiss 392.

### 68. POLYPOGON Desf.

Spikelets short-pedicellate; glumes awned, exceeding the short-awned lemma.

Plants annual; panicle dense and silky-----1. *P. monspeliensis*.

Plants perennial; panicle lobed or interrupted, not silky-----2. *P. littoralis*.

<sup>1</sup>Griseb. Fl. Brit. W. Ind. 533. 1864.

1. *Polypogon monspeliensis* (L.) Desf. Fl. Atlant. 1: 67. 1798.*Alopecurus monspeliensis* L. Sp. Pl. 61. 1753.

A low, weedy annual with inflated sheaths and dense silky-awned oblong heads.

Waste places, introduced from Alaska to Mexico and occasionally in other parts of America; also in Bermuda. A native of the Old World. Originally described from Montpellier, France.

2. *Polypogon littoralis* (With.) J. E. Smith, Comp. Fl. Brit. 13. 1800.*Agrostis littoralis* With. Bot. Arr. Veg. Brit. ed. 3. 2: 129. 1796.

A spreading perennial rooting at the nodes, the panicles less dense and less silky than those of the preceding species. Moist places, introduced from Europe into the warmer parts of America. Found in Bermuda. Originally described from Great Britain.

## 69. AGROSTIS L.

Spikelets paniculate; glumes awnless, exceeding the lemma; palea in most species wanting.

Palea about half as long as the lemma-----1. *A. alba*.

Palea wanting-----2. *A. perennans*.

1. *Agrostis alba* L. Sp. Pl. 63. 1753.

REDTOP.

Perennial from creeping rootstocks; culms erect; blades flat, scabrous; panicles open.

Commonly cultivated in the United States as a meadow and pasture grass. Introduced in Jamaica on Blue Mountain Peak. Originally described from Europe.

2. *Agrostis perennans* (Walt.) Tuckerm. Amer. Journ. Sci. 45: 44. 1843.*Cornucopiae perennans* Walt. Fl. Carol. 74. 1788.

Culms tufted, weak, ascending, the leaves mostly clustered toward the base, the panicles loose and open, the spikelets borne at the ends of the branchlets.

Open woods, northeastern United States to northern South America; also in the mountains of Santo Domingo (Constanza, Loma Rosilla). Originally described from South Carolina.

## 70. NOTHOLCUS Nash.

Spikelets 2-flowered; glumes equal, exceeding the florets; lower floret perfect, awnless, the upper staminate, bearing a hooklike dorsal awn.

1. *Notholcus lanatus* (L.) Nash; Hitchc. in Jepson, Fl. Calif. 1: 126. 1912.

VELVET GRASS.

*Holcus lanatus* L. Sp. Pl. 1048. 1753.

Perennial, 0.5 to 1 meter tall, grayish-velvety throughout, the pale, rather densely flowered narrow panicle usually 8 to 10 cm. long.

Introduced in America and occasionally cultivated as a meadow grass. Originally described from Europe. Collected in Jamaica (Hart 748), no locality given.

## 71. TRISETUM Pers.

Spikelets with 2 or 3 perfect florets; glumes unequal; lemmas bidentate, bearing a slender dorsal awn.

1. *Trisetum spicatum* (L.) Richt. Pl. Eur. 1: 59. 1890.*Aira spicata* L. Sp. Pl. 64. 1753.*Trisetum tolucense* Kunth, Rév. Gram. 1: 101, 297. pl. 60. 1829.

A densely tufted perennial with linear flat erect blades and shining spikelike panicles about 5 to 7 cm. long.

Arctic regions of the northern hemisphere, extending southward in the mountains to the southern hemisphere. Originally described from Lapland. In the West Indies only at high altitudes in Santo Domingo (Constanza, *Türkheim* 3133).

## 72. SPHENOPHOLIS Scribn.

Spikelets 2-flowered; glumes unequal, falling with the spikelet, the first narrow, acute, the second cuneate, blunt, becoming subcoriaceous in fruit; lemmas awnless.

### 1. *Sphenopholis obtusata* (Michx.) Scribn. *Rhodora* 8: 142. 1906.

*Aira obtusata* Michx. Fl. Bor. Amer. 1: 62. 1803.

*Eatonia obtusata* A. Gray, Man. ed. 2. 558. 1856.

A slender erect perennial with simple culms, linear blades, and shining spikelike panicles 5 to 8 cm. long.

Meadows and open woods, northeastern United States to southern Mexico; also in the mountains of Santo Domingo (Constanza, Valle Nuevo). Originally described from southeastern United States.

## 73. KOELERIA Pers.

Spikelets 2 to 4-flowered, glumes unequal, slightly shorter than the florets; lemmas awned.

### 1. *Koeleria phleoides* (Vill.) Pers. Syn. Pl. 1: 97. 1805.

*Festuca phleoides* Vill. Fl. Delph. 7. 1785.

A slender erect sparsely pilose annual 10 to 25 cm. tall, with lax flat blades and dense spikes of delicately awned spikelets.

A native of Europe; introduced in Bermuda.

## 74. AVENA L.

Spikelets large, 2 to 4-flowered; glumes equal, many-nerved, papery, exceeding the florets; lemmas bidentate, bearing a dorsal awn, the awn sometimes rudimentary.

Lemmas pubescent with long brown hairs-----1. *A. fatua*.

Lemmas glabrous or nearly so-----2. *A. sativa*.

### 1. *Avena fatua* L. Sp. Pl. 80. 1753.

WILD OAT.

A rather stout annual with long flat blades and large open panicles of large nodding spikelets.

A native of Europe, introduced in America, especially on the Pacific coast of the United States. Collected in Jamaica (*Hart* 1493), no locality given.

### 2. *Avena sativa* L. Sp. Pl. 79. 1753.

CULTIVATED OAT.

Differs from the preceding in its glabrous florets, and in the awns wanting or reduced and readily disarticulating.

Commonly cultivated in temperate regions and escaped or spontaneous in fields and waste places. Occasionally spontaneous in the cooler parts of the Tropics. Found in Cuba (near Habana, *León* 809) and Jamaica (near summit of Blue Mountain Peak, *Hitchcock* 9369).

## 75. DANTHONIA DC.

Spikelets several-flowered; glumes subequal, exceeding all the florets; lemmas bifid, with a twisted awn between the teeth; awn flat, formed by the extension of the 3 middle nerves of the lemma.



Awns of lemma lobes about 6 mm. long-----1. *D. shrevei*.  
 Awns of lemma lobes about 2 mm. long-----2. *D. domingensis*.

1. *Danthonia shrevei* Britton; Nash, *Torreya* 9: 210. 1909.

A densely tufted perennial with elongate involute scabrous blades aggregated at the base and overtopping the rather open panicle, the spikelets 12 to 15 mm. long, the spreading awns about 1 cm. long.

On cleared slopes near summit of Sir Johns Peak, Jamaica, whence described and the only known locality, the type collected by Shreve, May 7, 1906. Grows in large dense tufts that finally form tussocks raised above the general level of the soil.

2. *Danthonia domingensis* Hack. & Pilger in Urban, *Symb. Antill.* 6: 1. 1909.

Resembling the preceding, the blades more slender, scabrous only toward the apex, the panicle looser, the spikelets slightly larger.

Mountain meadows, Santo Domingo, whence described (Loma Rosilla, Province de la Vega, *Fuertes* 1776; Constanza, *Türkheim* 3414). The type specimen is *Eggers* 2227b.

## 76. *CAPRIOLA* Adans.

Spikelets 1-flowered, sessile, imbricate, in slender unilateral spikes; glumes unequal, narrow, acute; lemma broad, boat-shaped, inclosing a palea of equal length.

1. *Capriola dactylon* (L.) Kuntze, *Rev. Gen. Pl.* 2: 764. 1891. BERMUDA GRASS.

*Panicum dactylon* L. *Sp. Pl.* 58. 1753.

*Cynodon dactylon* Pers. *Syn. Pl.* 1: 85. 1805.

A low, extensively creeping perennial with compressed wiry culms, narrow, usually short blades, and 3 to 5 slender arcuate-spreading spikes aggregated at the apex of the culms.

Common in open, rather dry ground in the warmer parts of both hemispheres; apparently introduced in America. Originally described from southern Europe. To be found on probably all the islands of the West Indies. A common and well-known pasture grass, called Bermuda grass in the United States and Bahama grass in the English West Indies. In the Spanish islands it is called "grama," "hierba fina," and "hierba del prado," and because of its digitate spikes, "pata de gallina." In Antigua it is called "devil's grass."

## 77. *SPARTINA* Schreb.

Spikelets 1-flowered, sessile, flattened laterally, densely pectinate in thick unilateral spikes; glumes unequal, acuminate; lemma and palea obtuse, subequal.

1. *Spartina patens* juncea (Michx.) Hitchc. *Rhodora* 8: 210. 1906.

*Trachynotia juncea* Michx. *Fl. Bor. Amer.* 1: 64. 1803.

*Spartina juncea* Willd. *Enum. Pl.* 81. 1809.

Perennial with long stout scaly rhizomes and slender but strong erect culms commonly 1 meter or more tall, the long blades firm, involute, the inflorescence of 3 to 6 suberect spikes about 5 cm. long. Large colonies of sterile plants often found on sandy beaches.

Salt marshes and beaches along the coast, eastern United States and the West Indies. Originally described from South Carolina.

Bermuda, Bahamas (Eleuthera, Fortune Island), Jamaica (Black River), Porto Rico, Guadeloupe, and Martinique.

*SPARTINA CYNOSUROIDES* (L.) Roth. In the National Herbarium there is a specimen of this species, consisting only of an inflorescence, labeled "Bahama Islands."

78. *CHLORIS* Swartz.

Spikelets with 1 perfect floret, sessile along a slender rachis forming unilateral spikes, these digitate; glumes unequal; lemma awned or mucronate; rachilla prolonged behind the palea and bearing 1 to few rudimentary awned sterile lemmas. In Cuba the species are called "pata de gallina" because of their digitate spikes. Those with villous florets are often included in the general name "barba de indio" (Indian beard).

Lemmas awnless; spikes dark brown. (*EUSTACHYS*.)-----1. *C. petraea*.  
Lemmas awned; spikes pale or purplish.

Sterile floret narrow, the apex acute or subacute; spikelets imbricate, not pectinately arranged.

Spikes numerous, at least 10, ascending; spikelets approximate.

5. *C. radiata*.

Spikes not more than 6; spikelets somewhat distant.

Culms leafy throughout; spikes erect-----4. *C. leptantha*.

Culms naked or with few remote leaves; spikes divergent.

Spikelets divergent; plant delicate; blades filiform.

2. *C. cruciata*.

Spikelets appressed; plant slender but wiry; blades 1 to 2 mm.

wide -----3. *C. sagraeana*.

Sterile floret broad, truncate, broadest at the summit; spikelets pectinately arranged.

Plants perennial; commonly more than 1 meter tall.

10. *C. polydactyla*.

Plants annual; usually less than 75 cm. tall.

Awn of fertile lemma not longer than the body; lemma long-ciliate on keel and margins-----9. *C. ciliata*.

Awn of fertile lemma at least twice as long as the body.

Sterile florets 2; sterile lemmas nearly as broad as long.

8. *C. paraguayensis*.

Sterile floret 1; sterile lemma narrow, more than twice as long as broad.

Margins of fertile lemma ciliate from near the base, the hairs 0.5 mm. long; sheaths hairy in the throat.

6. *C. orthonoton*.

Margins of fertile lemma bearing near the apex a prominent tuft of hairs about 2 mm. long; keel of lemma ciliate to near the summit; sheaths glabrous in the throat -----7. *C. virgata*.

1. *Chloris petraea* Swartz. Prodr. Veg. Ind. Occ. 25. 1788.

*Agrostis complanata* Ait. Hort. Kew. 1: 96. 1789.

*Eustachys petraea* Desv. Nouv. Bull. Soc. Philom. Paris 2: 189. 1810.

*Schultesia petraea* Spreng. Pl. Pugill. 2: 17. 1815.

*Chloris septentrionalis* C. Muell. Bot. Zeit. 19: 340. 1861.

*Chloris swartzii* C. Muell. Bot. Zeit. 19: 341. 1861.

*Chloris swartziana* Doell in Mart. Fl. Bras. 2<sup>o</sup>: 68. 1878.

A glabrous glaucous sparingly stoloniferous perennial, the flat culms ascending, the keeled sheaths often in pairs, especially in robust plants, the flat,

thickish blades oblong or linear, obtuse; spikes few to several, the rachis and glumes pale green, the florets chestnut.

Open ground, especially in limestone soil near the coast, southern United States to Panama and the West Indies. Originally described from Jamaica; *Agrostis complanata* described from garden plants grown from seed from Jamaica; *C. septentrionalis* described from Texas.

Bermuda, Bahamas (Hog Island, New Providence, Anguilla Isles, Andros), Cuba, Jamaica, Santo Domingo, Porto Rico, and Trinidad.

*CHLORIS CARIBAEA* Spreng. (Syst. Veg. 1: 295. 1825. *C. bahiensis* Steud.) was described from "Ins Carib." The type specimen is labeled as collected in Guadeloupe by Bertero, but the locality is probably an error.<sup>1</sup>

2. *Chloris cruciata* (L.) Swartz, Prodr. Veg. Ind. Occ. 23. 1788.

*Agrostis cruciata* L. Syst. Nat. ed. 10. 2: 893. 1759.

*Vilfa? cruciata* Beauv. Ess. Agrost. 16, 181. 1812.

*Rabdochloa cruciata* Beauv. Ess. Agrost. 84, 158, 176. 1812.

*Chloris humboldtiana* Steud. Syn. Pl. Glum. 1: 205. 1854.

*Chloris brevigluma* Wright, Anal. Acad. Cienc. Habana 8: 200. 1871.

A low, densely tufted perennial, with delicate, sometimes elongate and straggling culms, branching from the lower nodes, filiform blades, and usually 2 or 3 at length widely spreading spikes 2 to 3 cm. long, the small spikelets with long delicate awns.

Stony slopes, Cuba and Jamaica. Originally described from Jamaica. *Chloris humboldtiana* and *C. brevigluma* were described from Cuba, Wright 1548 in part being the type of the latter.

3. *Chloris sagraeana* A. Rich. in Sagra, Hist. Cuba 11: 315. 1850.

*Chloris eleusinoides* Griseb. Fl. Brit. W. Ind. 539. 1864.

*Chloris eleusinoides* var. *vestita* Greenm. in Combs, Trans. Acad. St. Louis 7: 477. 1897.

Perennial; culms ascending, 20 to 60 cm. long, branching from the lower nodes; sheaths keeled, blades folded; spikes mostly 4 or 5, stiffly horizontally spreading at maturity, the imbricate but not crowded spikelets with delicate awns about 12 mm. long. Foliage occasionally puberulent.

Open ground and grassy banks, West Indies. Originally described from Cuba. Richard states that his plant agrees perfectly with Sloane's plate 68, fig. 3, which is the same as *C. eleusinoides*.<sup>2</sup> *Chloris eleusinoides* was described from Jamaica and Antigua. The variety *vestita* is based on a puberulent specimen from Cienfuegas, Cuba.

Bahamas (New Providence, Inagua), Cuba, Jamaica, Santo Domingo, St. Croix, Antigua, and Guadeloupe.

4. *Chloris leptantha* Hitchc. in Urban, Symb. Antill. 7: 166. 1912.

A tufted ascending leafy perennial, commonly 30 to 50 cm. tall, the sheaths and numerous short usually flat blades pubescent; spikes slender, the spikelets rather distant.

Open dry ground Jamaica (vicinity of Kingston and eastward), Santo Domingo (Las Salinas) and northern South America. Originally described from the island of Bonaire.

5. *Chloris radiata* (L.) Swartz, Prodr. Veg. Ind. Occ. 26. 1788.

*Agrostis radiata* L. Syst. Nat. ed. 10. 2: 879. 1759.

<sup>1</sup> Compare Urban, Symb. Antill. 4: 103. 1903.

<sup>2</sup> For a discussion of Sloane's plate and the type of *Agrostis radiata* L. see Contr. U. S. Nat. Herb. 12: 120. 1908.

*Chloris glaucescens* Steud. Syn. Pl. Glum. 1: 203. 1854.

A weedy branching decumbent-ascending annual, the sheaths broad, compressed, the blades thin, flat or folded, scaberulous or sparsely pilose, the slender spikes somewhat flexuous.

Ditches and waste places, southern Mexico and the West Indies to northern South America. Originally described from Jamaica. Found throughout the West Indies as a common weed along roadsides.

6. *Chloris orthonoton* Doell in Mart. Fl. Bras. 2<sup>o</sup>: 64. 1878.

Sparingly stoloniferous, grayish, the flat culms commonly 40 to 60 cm. tall, the compressed sheaths hairy in the throat, the flat or folded blades about 5 mm. wide, scabrous on the upper surface; spikes 4 to 9, ascending, somewhat flexuous, the awns about 1 cm. long.

Open ground and waste places, Mexico to Costa Rica; also in Cuba (Habana) and Jamaica (Vere). Originally described from specimens growing in the Botanical Garden at Montpellier, France. This species was formerly referred by Hitchcock<sup>1</sup> to *Chloris virgata*. *Chloris glaucescens* was described from Guadeloupe. In Cuba called "hierba de pavo."

7. *Chloris virgata* Swartz, Fl. Ind. Occ. 1: 203. 1797.

*Chloris elegans* H. B. K. Nov. Gen. & Sp. 1: 166. pl. 47. 1816.

*Chloris penicillata* Willd.; Steud. Nom. Bot. ed. 2. 1: 353. 1840, as synonym.

Culms ascending, 20 to 40 cm. tall, scarcely compressed, the upper sheaths slightly inflated, glabrous in the throat; spikes mostly 5 or 6, suberect, somewhat flexuous in age, 3 to 5 cm. long; fertile lemma villous on the keel to a little below the summit.

Open mostly sterile ground, West Indies to Brazil. Originally described from Antigua. There has been some confusion as to the identity of this species. There is no specimen of it in the Swartz Herbarium,<sup>2</sup> but Swartz's description applies well to the form to which the name is here assigned, and not to the form (*C. orthonoton* Doell) to which Kunth<sup>3</sup> assigned it. Doell<sup>4</sup> interprets Swartz's species as it is here understood. *Chloris elegans*, originally described from Mexico, is figured with lemma glabrous on the keel, but continental specimens show all gradations between glabrous and strongly villous keels.

Cuba, Jamaica (Linstead), and Guadeloupe.

8. *Chloris paraguayensis* Steud. Syn. Pl. Glum. 1: 204. 1854.

Tufted, 30 to 75 cm. tall; culms and sheaths strongly compressed; blades long, lax; spikes about 10, usually flexuous, commonly purplish-tinged, 4 to 6 cm. long, the slender spreading awns about 6 mm. long.

Open ground and waste places, Mexico and the West Indies to South America. Originally described from Paraguay. Grisebach refers this species to *Chloris barbata* Swartz. Common in the West Indies from the Bahamas and Cuba to Martinique.

9. *Chloris ciliata* Swartz, Prodr. Veg. Ind. Occ. 25. 1788.

*Chloris propinqua* Steud. Syn. Pl. Glum. 1: 204. 1854.

Culms rather stouter and blades firmer than in the preceding; spikes pale, 4 to 6, strongly flexuous, the florets conspicuously silky-ciliate, the awns 1 to 1.5 mm. long.

<sup>1</sup> Contr. U. S. Nat. Herb. 17: 332. 1913.

<sup>2</sup> See Contr. U. S. Nat. Herb. 12: 142. 1908.

<sup>3</sup> H. B. K. Nov. Gen. & Sp. 1: 166. 1816.

<sup>4</sup> In Mart. Fl. Bras. 2<sup>o</sup>: 65. 1877.

Open ground and waste places, Texas and the West Indies to South America. Originally described from Jamaica. *Chloris propinqua* was described from Guadeloupe.

Bahamas (New Providence), Cuba, Jamaica, Santo Domingo, Porto Rico (Ponce), St. Croix, Antigua, Guadeloupe, Martinique, and Grenada.

**10. *Chloris polydactyla* (L.) Swartz, Prodr. Veg. Ind. Occ. 26. 1788.**

*Andropogon barbatus* L. Syst. Nat. ed. 10. 2: 1305. 1759.

*Andropogon polydactylon* L. Sp. Pl. ed. 2. 1483. 1763.

*Chloris barbata* Nash, Bull. Torrey Club 25: 443. 1898, not *Chloris barbata* Swartz, 1797 (this being *Andropogon barbatus* L., 1771, from the East Indies).

Culms rather stout, commonly more than 1 meter tall; blades about 1 cm. wide; spikes 5 to 10, pale, usually 8 to 10 cm. long, strongly flexuous. The tallest species of the genus in the West Indies.

Savannas and grassy slopes, Florida and the West Indies to Brazil. Originally described from Jamaica.

Bahamas (New Providence, Cat Island), Jamaica, and Antigua.

**79. GYMNOPOGON Beauv.**

Spikelets with 1 perfect floret and 2 or 3 sterile florets, mostly reduced to single awns, above it; glumes equaling or exceeding the florets; fertile lemma narrow, long-awned; spikelets distant or approximate, appressed along a slender axis.

Spikes 2 to 4 cm. long, aggregated at the summit of the naked culms.

**1. *G. foliosus*.**

Spikes 15 to 25 cm. long, scattered along the upper part of the culms.

**2. *G. spicatus*.**

**1. *Gymnopogon foliosus* (Willd.) Nees, Agrost. Bras. 426. 1829.**

*Chloris foliosa* Willd. Sp. Pl. 4: 924. 1806.

*Biatherium foliosum* Desv. Opusc. 72. 1831.

*Aristida geminata* Willd.; Steud. Nom. Bot. ed. 2. 1: 131. 1840, as synonym.

*Chloris aristata* Salzm.; Steud. Syn. Pl. Glum. 1: 218. 1854, as synonym.

A tufted annual, the wiry branching, short-jointed culms ascending (sometimes decumbent at base), 15 to 50 cm. tall, with numerous short, squarrose blades and a subdigitate inflorescence of few to several ascending, delicately awned spikes.

White sand barrens near Laguna del Tortuguero, Porto Rico, Santo Domingo (locality unknown), St. Thomas, and northern South America. Originally described from St. Thomas.

**2. *Gymnopogon spicatus* (Spreng.) Kuntze, Rev. Gen. Pl. 3<sup>2</sup>: 354. 1898.**

*Polypogon spicatus* Spreng. Syst. Veg. 1: 243. 1825.

*Gymnopogon laevis* Nees, Agrost. Bras. 428. 1829.

*Gymnopogon filiformis* Griseb. Fl. Brit. W. Ind. 538. 1864.

A straggling perennial with slender wiry culms 0.5 to 1 meter long, thickish blades 3 to 7 cm. long, the inflorescence commonly nearly half the entire length of the plant, the slender divaricate spikes naked or nearly so for the lower one-third to half their length.

Sterile hills, Trinidad (locality unknown, *Trin. Bot. Gard. Herb.* 3361) to Argentina. Originally described from Brazil. The type locality of *G. laevis* is Brazil, of *G. filiformis*. Trinidad.

## 80. SAUGETIA gen. nov.

Spikelets 2-flowered, the first perfect, the second neuter and much reduced; glumes thin, unequal, 1-nerved, acuminate, shorter than the floret; first floret stipitate, the lemma firm, minutely 2-toothed at the apex, 3-nerved, the midnerve produced into a delicate awn; palea slightly shorter than the lemma, acute, sulcate between the nerves; second floret reduced to a minute glume on an elongate slender rachilla joint. Cespitose perennial with slender wiry branching culms, filiform blades, and solitary delicate few-flowered spikes, the spikelets sessile, contiguous but scarcely imbricate along one side of a slender continuous rachis, closely appressed to it.

Type and only known species, *Saugetia fasciculata*.

*Saugetia* we judge to be most nearly related to *Gymnopogon* and the South American *Monochaete*, from both of which it differs in having a solitary terminal spike. It differs further from *Gymnopogon* in having but a single rudimentary floret and from *Monochaete* in the stipitate fertile floret and in the presence of a sterile floret.

It gives us great pleasure to name this striking genus for Brother León, Joseph Sylvestre Sauget, who has contributed greatly to our knowledge of the grasses of Cuba.

1. *Saugetia fasciculata* sp. nov.

Plants perennial in dense hard tufts, glabrous throughout; culms slender, hard and wiry, 40 to 50 cm. tall, erect or the summit leaning, the internodes elongate, branching at most of the nodes, the branches mostly fascicled, commonly one of them elongate, the others reduced to leafy shoots of overlapping sheaths and short spreading blades, these branchlets forming conspicuous tufts along the main culms and branches; sheaths 5 to 8 mm. long, with broad papery margins, a tuft of delicate white hairs 1 mm. long at the summit, these wanting on old sheaths, the sheaths of the branchlets reduced; ligule obsolete; blades filiform, crescent-shaped in cross section, scarcely 0.5 mm. wide when flattened out, flexuous, the primary blades as much as 10 cm. long, those of the branchlets 1 to 3 cm. long; spikes long-exserted, erect, 3 to 5 cm. long, the rachis subfiliform, slightly concavo-convex, the spikelets fitting into the cavities; spikelets distant by about their own length to half their length, 3.6 to 3.8 mm. long excluding the awn; glumes lanceolate-subulate, the first 0.7 to 0.8 mm. long, the second 2 to 2.5 mm. long; floret stipitate, the stipe 0.5 mm. long, bearded with erect hairs 0.4 to 0.5 mm. long; lemma 3.2 mm. long (excluding the awn), about 0.4 mm. wide, glabrous, the lateral nerves near the margin, the midnerve becoming strong toward the summit and produced into a delicate flexuous erect, minutely scabrous awn 12 to 16 mm. long; palea minutely scabrous on the nerves; second floret reduced to a narrow pointed 1-nerved lemma about 1.2 mm. long, the slender glabrous erect rachilla joint 1.8 mm. long.

Type in the U. S. National Herbarium, no. 950204, collected in a small wood, Savana San Julián, south of Guane, Province of Pinar del Río, Cuba, December 28, 1916, by Brother León (no. 6901).

A fragmentary specimen of this peculiar grass was collected by Wright "in small skirts of woods bordering the Savana San Julián" in 1865 (no. 3894) and was listed in Sauvalle's *Flora Cubana*<sup>1</sup> without description as "*Muhlenbergia spicata* Munn," and by Hitchcock<sup>2</sup> as an unidentified specimen. The

<sup>1</sup> Page 191.<sup>2</sup> Contr. U. S. Nat. Herb. 12: 246. 1909.

few weatherworn spikelets on the Wright specimen were too much broken to permit of diagnosis. Brother León at our request kindly visited the locality and sent us a specimen of this apparently very rare species. His letter in regard to this collection is of interest: "I visited the Savana San Julián in company with Father Modesto Roca of Guanabacoa. The first two days I did not see any kind of *Bouteloua* [from the broken Wright specimen we had guessed it to be a species of that genus], not knowing on what border of the savanna were the skirts of woods, and the savanna has a circuit of 40 to 50 kilometers. At last \* \* \* we went to a small wood (Cayo Gabino) on the northeastern border of the hacienda [of Señor D. J. M. Lamas] and there I saw a tufted grass which I supposed might be the long lost species of Wright, though at first sight it called to my mind the idea of a small *Arthrostylidium*, having some resemblance to my no. 4853 [*Arthrostylidium capillifolium*]. I noted with pleasure that it agreed exactly with your description. Unluckily there remained very few flowers. I entered the wood at different places all around but could not find more of it." It is noteworthy that in his field notes Wright called his no. 3894 "*Arthrostylidium*."

### 81. *BOUTELOUA* Lag.<sup>1</sup>

Spikelets with 1 perfect floret, crowded along 1 side of a narrow rachis, forming short spikes (rarely but a single spikelet to a spike); glumes unequal; fertile lemma rather broad, usually 3 to 5-toothed, commonly mucronate or awned; sterile lemmas usually with 3 awns; spikes racemose, often drooping.

Second floret a trifid naked awnlike rudiment.

Lateral awns of rudiment much shorter than the central one or nearly obsolete ----- 1. *B. vaneedeni*.

Lateral awns of rudiment nearly as long as the central one.

Plants very small; blades not over 1.5 cm. long; spikes less than 5 mm. long ----- 2. *B. juncea*.

Plants in rather large mats; blades commonly 10 cm. long; spikes 2 cm. or more long ----- 3. *B. americana*.

Second floret well developed, the lemma evident.

First floret sterile, the second mostly fertile ----- 4. *B. heterostega*.

First floret fertile, the second sterile ----- 5. *B. disticha*.

#### 1. *Bouteloua vaneedeni* Pilger in Urban, Symb. Antill. 6: 2. 1909.

Very slender, tufted; culms erect, finally producing short fascicled branches; blades involute; inflorescence a very slender raceme 5 to 15 cm. long, of numerous small spikes of few spikelets.

Only known from the island of Anguilla, where the type was collected by Boldingh (no. 3512B).

#### 2. *Bouteloua juncea* (Desv.) Hitchc. Contr. U. S. Nat. Herb. 17: 343. 1913.

*Triathera juncea* Desv.; Beauv. Ess. Agrost. 40. pl. 9. f. 4. 1812.

*Eutriana juncea* Trin. Gram. Unifl. 238. 1824.

*Eutriana ledebouri* Trin. Gram. Unifl. 238. 1824.

*Aristida secunda* Ledeb.; Trin. loc. cit. as synonym of *Eutriana ledebouri*.

*Atheropogon domingensis* Spreng. Syst. Veg. 1: 293. 1825.

*Triaena juncea* Griffiths, Contr. U. S. Nat. Herb. 14: 354. 1912.

<sup>1</sup> This genus has recently been revised by Griffiths (Contr. U. S. Nat. Herb. 14: 343-428. 1912), who gives a nearly complete synonymy. Here, therefore, only such synonyms are given as are found in West Indian floras and a few others not included by Dr. Griffiths.

A low delicate perennial, prostrate below, geniculate at the lower nodes, the branches commonly in pairs or fascicles; nodes and summit of the sheaths pilose; blades flat or folded, 8 to 12 mm. long, about 1.5 mm. wide; racemes of few to several minute spikes, the spikelet solitary, pilose at base, 3 to 4 mm. long; glumes lanceolate, acuminate, the first one-third, the second slightly over half the length of the spikelet; fertile lemma narrow, with 3 erect scabrous teeth at the summit, the palea 2-toothed, shorter; sterile floret about equaling the fertile lemma, consisting of 3 slender scabrous awns.

Arid open ground, Haiti (Gonaïves, *Buch* 1910) and Porto Rico (red soil plain, Salinas de Guanica, *Britton, Cowell & Brown* 4918). Originally described from Hispaniola. *Eutriana ledebouri* was described from "Domingo" (though the type specimen, collected by Poiteau, is labeled "Hayti"). Griffiths<sup>1</sup> applies Desvauz's specific name to a Mexican species, *Bouteloua triana* (Trin.) Scribn., basing his judgment on Beauvois's crude illustration, and lists *Eutriana ledebouri* under species excluded from *Bouteloua*. Until recently collected by Buch in Haiti and by Britton, Cowell, and Brown in Porto Rico this species was known only from the collections described by Desvauz and by Trinius. The Mexican *B. triana*, with its spikes of a single spikelet, was apparently the only species to which Beauvois's figure could apply, though the description states that the lemma of the fertile floret is minutely trifid and the figure shows such a lemma. In the Mexican species the lemma is entire, while in Buch's specimen from Haiti the lemma is trifid. Pilger<sup>2</sup> applies the name "*Bouteloua americana* (Desv.) Pilger" to Buch's collection, basing the name on "*Triathera americana* Desv., excluding synonymy." Desvauz<sup>3</sup> described the genus *Triathera* with a single species, *T. americana*, based on "*Aristida americana* Sw." (the same as *A. americana* L., as is shown clearly by Swartz's illustration;<sup>4</sup> that is, *Bouteloua americana*). Desvauz mentioned no specimen of his own, but later<sup>5</sup> he emended the generic description, accepting the specific name "*junccea*," as published under his authorship the previous year by Beauvois, and added "Habitat in Hispaniola."

3. *Bouteloua americana* (L.) Scribn. Proc. Acad. Phila. 1891: 306. 1891.

*Aristida americana* L. Syst. Nat. ed. 10. 2: 879. 1759.

*Aristida antillarum* Poir. in Lam. Encycl. Suppl. 1: 451. 1810.

*Bouteloua litigiosa* Lag. Gen. & Sp. Nov. 5. 1816.

*Chactaria antillarum* Beauv.; Roem. & Schult. Syst. Veg. 2: 395. 1817.

*Aristida subbiflora* Steud. Syn. Pl. Glum. 1: 138. 1854.

*Eutriana antillarum* Steud. Syn. Pl. Glum. 1: 217. 1854.

*Bouteloua clatior* Griseb. Fl. Brit. W. Ind. 537. 1864.

*Aristida adscensionis* var. *americana* Kuntze, Rev. Gen. Pl. 3: 340. 1898.

A tufted perennial, the freely branching flattened wiry culms often 60 or 70 cm. long (sometimes longer), decumbent with ascending ends, the narrow blades mostly involute-pointed, the few to several slender, loosely flowered spikes divergent, rather distant.

Open, dry ground, West Indies to Panama and Venezuela. *Aristida americana* (of which *B. litigiosa* is a typonym) was described from Jamaica, *A. antillarum* from the Antilles, *A. subbiflora* from Guadeloupe, and *Bouteloua clatior* from Antigua.

<sup>1</sup> Contr. U. S. Nat. Herb. 14: 424. 1912.

<sup>2</sup> In Urban, Symb. Antill. 5: 288. 1907.

<sup>3</sup> Nouv. Bull. Soc. Philom. Paris 2: 188. 1810.

<sup>4</sup> Obs. Bot. pl. 2. f. 2. 1791.

<sup>5</sup> Journ. de Bot. Desv. 1: 67. 1813.



Cuba, Jamaica, Santo Domingo, Porto Rico (the south and west coasts and on Vieques), St. Thomas, St. Croix, St. Jan, Antigua, Montserrat, Guadeloupe, Dominica, Martinique, Barbados, St. Vincent, Grenada, and Tobago.

4. *Bouteloua heterostega* (Trin.) Griffiths, Contr. U. S. Nat. Herb. 14: 414. 1912.

*Heterosteca juncifolia* Desv. Nouv. Bull. Soc. Philom. Paris 2: 188. 1810.

*Eutriana heterostega* Trin. Gram. Unifl. 242. 1824.

*Bouteloua humboldtiana* Griseb. Mem. Amer. Acad. n. ser. 8: 532. 1862.

*Bouteloua porphyrantha* Wright, Anal. Acad. Cienc. Habana 8: 201. 1871.

*Heterosteca rhadina* Nash, Bull. Torrey Club 30: 386. 1903.

Similar to the preceding, the blades longer, the spikes broader, usually shorter, the spikelets more closely arranged.

Open ground, West Indies. Originally described from the Antilles, *Heterosteca juncifolia* and *Eutriana heterostega* being typonyms. The type of *Bouteloua humboldtiana* is from Cuba (Wright 734, 739); the type of *Heterosteca rhadina* is from Porto Rico (Heller 6057). *Bouteloua porphyrantha* was based upon Wright 739 in part, 734, and 3816. Griffiths (loc. cit.) selects the first specimen as the type.

Cuba, Haiti, Santo Domingo, and Porto Rico.

5. *Bouteloua disticha* (H. B. K.) Benth. Journ. Linn. Soc. Bot. 19: 105. 1881.

*Polyodon distichum* H. B. K. Nov. Gen. & Sp. 1: 175. pl. 55. 1816.

Culms elongate, straggling; leaves mostly clustered toward the base; spikes numerous, approximate in long terminal and axillary racemes.

Open ground and dry hills, Pacific coast of Central America to Ecuador; also in the vicinity of Habana, Cuba, where it is apparently introduced. Originally described from Ecuador.

## 82. TRIPOGON Roem. & Schult.

Spikelets several to many-flowered, sessile, erect in a single spike; glumes shorter than the lowermost floret; lemmas awned from between the lobes of the minutely two-lobed summit.

1. *Tripogon spicatus* (Nees) Ekman, Ark. für Bot. 11<sup>4</sup>: 36. 1912.

*Bromus spicatus* Nees, Agrost. Bras. 471. 1829.

*Tricuspis simplex* Griseb. Mem. Amer. Acad. n. ser. 8: 532. 1862.

*Leptochloa spicata* Scribn. Proc. Acad. Phila. 1891: 304. 1892.

A low, densely tufted perennial, the subfiliform leaves aggregated at the base, the slender culms erect, spikelet-bearing for one-third to half their length.

Sterile hills, Texas to Argentina; also in eastern Cuba (Wright 1551, the type of *Tricuspis simplex*). Originally described from Brazil.

## 83. ELEUSINE Gaertn.

Spikelets several to many-flowered, densely imbricate in thick spikes, these subdigitate; glumes and lemmas with thickened 5-nerved keels, acute; caryopsis with a thin pericarp marked with fine transverse lines.

1. *Eleusine indica* (L.) Gaertn. Fruct. & Sem. 1: 8. 1788.

GOOSE GRASS.

*Cynosurus indicus* L. Sp. Pl. 72. 1753.

A weedy annual with spreading or ascending flattened branching culms, thin flat linear blades, and 2 to several spikes (sometimes one spike 1 to 3 cm. below) 5 to 10 cm. long.

Open ground and waste places. A common weed of warm and warm-temperate regions. Introduced in America; originally described from India. To

be found on all the West Indian islands. In Cuba called "pata de gallina" and "grama de caballo."

#### 84. DACTYLOCTENIUM Willd.

Spikelets as in Eleusine, but the glumes and lemmas mucronate or awn-tipped; apex of the rachis extending as a point beyond the spikelets.

##### 1. *Dactyloctenium aegyptium* (L.) Richt. Pl. Eur. 1: 68. 1870.

CROWFOOT GRASS.

*Cynosurus aegyptius* L. Sp. Pl. 72. 1753.

*Dactyloctenium meridionale* Hamilt. Prodr. Pl. Ind. Occ. 6. 1825.

A weedy stoloniferous, more or less pilose annual, often forming dense mats, the flat culms 10 to 50 cm. long, the blades flat, usually short, the spikes 2 to 4, short, thick, radiate at the apex of the culm.

Open ground and waste places. A common weed in warm countries. Introduced in America; originally described from "Africa, Asia, America." To be found on all the West Indian islands. In Cuba called "pata de gallina."

#### 85. LEPTOCHLOA Beauv.<sup>1</sup>

Spikelets few to many-flowered, short-pedicellate, appressed, loosely imbricate along a narrow rachis, forming slender racemes, these numerous in an elongate panicle; glumes and lemmas keeled, the lemmas 3-nerved.

##### Plants annual.

Sheaths, at least the upper, papillose-hispid-----1. *L. filiformis*.

Sheaths glabrous.

Spikes distinctly unilateral, numerous and crowded in a narrow elongate inflorescence; sheaths minutely scabrous-----2. *L. scabra*.

Spikes indistinctly unilateral, few to several in a somewhat flabellate inflorescence; sheaths smooth.

Lemmas bearing a delicate awn-----3. *L. fascicularis*.

Lemmas awnless or minutely mucronate-----4. *L. uninervia*.

##### Plants perennial.

Spikes slender, 15 to 20 cm. long, the spikelets rather distant; collar densely hirsute-----8. *L. longa*.

Spikes mostly less than 10 cm. long, the spikelets crowded; collar glabrous or slightly pubescent.

Spikes 2 to 3 cm. long, appressed in a long narrow inflorescence; lemmas awnless-----5. *L. nealleyi*.

Spikes mostly over 5 cm. long, somewhat flexuous and spreading in an oblong or flabellate inflorescence; lemmas mucronate or awned.

Sheaths and blades glabrous, usually somewhat glaucous; awnless or the awns shorter than body of lemma-----6. *L. virgata*.

Sheaths sparsely papillose-hispid; blades sparsely villous on the upper surface near the base; awns or some of them about as long as their lemmas-----7. *L. domingensis*.

##### 1. *Leptochloa filiformis* (Lam.) Beauv. Ess. Agrost. 71, 166. 1812.

*Festuca filiformis* Lam. Tabl. Encycl. 1: 191. 1791.

*Eleusine mucronata* Michx. Fl. Bor. Amer. 1: 65. 1803.

*Rabdochloa? mucronata* Beauv. Ess. Agrost. 84, 176. 1812.

<sup>1</sup>For an account of the North American species see A. S. Hitchcock, North American species of *Leptochloa*. U. S. Dept. Agr. Bur. Pl. Ind. Bull. 33. 1903.

*Leptochloa mucronata* Kunth, Rév. Gram. 1: 91. 1829.

*Leptochloa brachiata* Steud. Syn. Pl. Glum. 1: 209. 1854.

Culms ascending or erect, geniculate below, branching at the base, commonly 40 to 70 cm. tall (dwarf specimens 10 to 20 cm. tall); blades thin, flat; racemes very slender, spreading.

Fields and open ground, Virginia to California, south to South America. Originally described from tropical America. *Eleusine mucronata* was described from Illinois; *Leptochloa brachiata* from Guadeloupe. A common weed in fields throughout the West Indies, except the Bahamas. *Leptochloa mucronata* var. *multiflora* Eggers<sup>1</sup> is listed, without description, from St. Croix.

2. *Leptochloa scabra* Nees, Agrost. Bras. 435. 1829.

Resembling the preceding but the inflorescence narrower, commonly taller and more robust, the spikes less slender, ascending, flexuous, the spikelets larger.

Ditches and shallow swamps, Louisiana, Porto Rico, Trinidad, Tobago, and Central America, to Brazil, whence originally described.

3. *Leptochloa fascicularis* (Lam.) A. Gray, Man. 588. 1848.

*Festuca fascicularis* Lam. Tabl. Encycl. 1: 189. 1791.

*Festuca polystachya* Michx. Fl. Bor. Amer. 1: 66. 1803.

Semiaquatic; culms tufted, 30 to 100 cm. tall, branching, the subinvolute blades overtopping the inflorescence; spikelets 7 to 9 mm. long, the florets awn-tipped.

Ditches and moist ground, United States, Mexico, and the West Indies. Originally described from South America.

Bahamas (New Providence, Great Exuma), Cuba, Jamaica, and St. Croix.

4. *Leptochloa uninervia* (Presl).

*Megastachya uninervia* Presl, Rel. Haenk. 1: 283. 1830.

*Diplachne verticillata* Nees & Mey. Nov. Act. Nat. Cur. 19. Suppl. 1: 158. 1843.

*Atropis carinata* Griseb. Abh. Ges. Wiss. Göttingen 24: 291. 1879.

*Leptochloa imbricata* Thurb. Bot. Calif. 2: 293. 1880.

*Leptochloa virletii* Fourn. Mex. Pl. 2: 147. 1886.

*Diplachne tarapacana* Phil. Anal. Mus. Nac. Chili Bot. 8: 88. 1891.

*Rabdochloa imbricata* Kuntze, Rev. Gen. Pl. 3: 788. 1891.

*Diplachne carinata* Hack. Bol. Acad. Nac. Cienc. Córdoba 16: 253. 1900.

Similar to *L. fascicularis* in habit, the racemes rather more densely flowered, the lemmas obtuse.

Ditches and wet open ground, southwestern United States and south to Argentina and Chile. In the West Indies known only from Jamaica (Salt Ponds, Harris 12309, 12311).

Originally described from Mexico; *Diplachne verticillata* and *D. tarapacana* were described from Chile, *Leptochloa imbricata* from California, *L. virletii* from Mexico, and *Atropis carinata* from Argentina.

5. *Leptochloa nealleyi* Vasey, Bull. Torrey Club 12: 7. 1885.

*Leptochloa stricta* Fourn. Mex. Pl. 2: 147. 1886.

Tall, slender, glabrous, the culms flattened, the sheaths keeled, the involute blades scabrous; panicle long, narrow, the pale densely flowered suberect racemes commonly 2 to 3 cm. long.

Wet woods, Texas, Mexico, and Cuba (Tiffin, Shafer 2904). Originally described from Texas. *Leptochloa stricta* was described from Veracruz, Mexico.

6. *Leptochloa virgata* (L.) Beauv. Ess. Agrost. 166. 1812.

*Cynosurus virgatus* L. Syst. Nat. ed. 10. 2: 87. 1759.

<sup>1</sup> Vidensk. Medd. Naturhist. Forening. Copenhagen III. 8: 151. 1876.

*Eleusine virgata* Pers. Syn. Pl. 1: 87. 1805.

*Leptostachys virgata* Meyer, Prim. Fl. Esseq. 74. 1818.

*Oxydenia virgata* Nutt.; Hook. & Jacks. Ind. Kew. 2: 392. 1894.

*Leptochloa perennis* Hack. Inf. Est. Centr. Agron. Cuba 1: 411. 1906.

Culms in small tufts, tall, slender, strong and wiry, sparingly branching; blades flat; racemes commonly about 10 cm. long, lax, ascending, aggregated toward the summit of the culm.

Open ground and grassy slopes, Mexico and the West Indies to South America. Originally described from Jamaica. *Leptochloa perennis* was described from Cuba, the type being Baker 4617 from La Magdalena. To be found on probably all of the West Indian islands.

7. *Leptochloa domingensis* (Jacq.) Trin. Fund. Agrost. 133. 1820.

*Cynosurus domingensis* Jacq. Misc. 2: 363. 1781.

*Rabdochloa domingensis* Beauv. Ess. Agrost. 84, 176. 1812.

*Leptochloa virgata gracilis* Nees; Griseb. Fl. Brit. W. Ind. 538. 1864.

*Leptochloa virgata domingensis* Link; Griseb. Fl. Brit. W. Ind. 538. 1864.

Resembling the preceding, the panicles more elongate, the racemes more numerous.

Open ground and grassy banks, Florida, Mexico, and the West Indies. Original locality not given, presumably Santo Domingo.

Bahamas (New Providence, Eleuthera), Cuba, Jamaica, Haiti, Santo Domingo, Antigua, Saba, Guadeloupe, Martinique, St. Vincent, and Trinidad.

8. *Leptochloa longa* Griseb. Fl. Brit. W. Ind. 538. 1868.

Culms commonly 1.5 meters tall, geniculate below, robust; blades 1.5 to 2.5 cm. wide, the long spreading, loosely flowered racemes mostly in distant fascicles.

Rich shady banks, Trinidad (San Fernando, Manzanilla), the type locality.

## 86. GOUNIA Fourn.

Spikelets few-flowered, short-pedicellate, appressed, in slender elongate racemes, these paniculate; glumes and lemmas keeled, the lemmas bearded at the base, awned.

1. *Gouinia virgata* (Presl) Scribn. U. S. Dept. Agr. Div. Agrost. Bull. 4: 10. 1897.

*Bromus virgatus* Presl, Rel. Haenk. 1: 263. 1830.

*Festuca laxiflora* A. Rich. In Sagra, Hist. Cuba 11: 318. 1850.

*Festuca fournieriana* Hemsl. Biol. Centr. Amer. Bot. 3: 581. 1885.

*Gouinia polygama* Fourn. Mex. Pl. 2: 103. 1886.

A scrambling perennial with slender wiry culms more than a meter long, thin long flat blades, and large few-flowered panicles of few to several remote divergent racemes with rather large spikelets.

Rocky brushy slopes, Mexico and Province of Habana, Cuba. Originally described from "Peru and Mexico," but the former locality probably an error. *Gouinia polygama* was also described from Mexico. *Festuca fournieriana* is a change of name based upon Fournier's then unpublished name. *Festuca laxiflora* was described from Habana.

## 87. OPIZIA Presl.

Plants monœcious (sometimes diœcious); pistillate spikelets in a single loose 1-sided spike; first glume minute or obsolete; second glume nearly as long as the floret; fertile lemma subindurate, broad, 3-awned, inclosing a broad palea with

keels crested above, the rachilla joint below the 3-awned rudimentary floret adnate to the lower part of the keel; staminate spikelets awnless, imbricate in short spikes, these racemose.

1. *Opizia stolonifera* Presl, Rel. Haenk. 1: 293. pl. 41. f. 1. 1830.

A low stoloniferous perennial forming dense mats, the shoots on the stolons mostly fascicled, the slender flowering culms 5 to 10 cm. tall; blades flat; pistillate spikes short-exserted, the 1 to 3 racemose staminate spikes long-exserted.

Open ground and pastures, southern Mexico and vicinity of Habana, Cuba. Originally described from Acapulco.

## 88. PAPPOPHORUM Schreb.

Spikelets 1 to 3-flowered, the upper sterile; glumes thin, subequal; lemma subindurate, dissolving at the summit into about 13 slender awns, the second and third florets reduced, closely appressed to the palea, the awns of all the florets together forming a pappus-like crown, falling attached to the fruit.

1. *Pappophorum alopecuroideum* Vahl, Symb. Bot. 3: 10. 1794.

*Pappophorum laguroideum* Schrad.; Schult. Mant. 2: 342. 1824.

A tufted glabrous perennial with erect culms 1 meter or more tall, long involute blades, and pale elongate spikelike, densely flowered panicles softly bristly from the numerous delicate awns.

Rocky soil, southern Mexico to South America and the West Indies. Vahl states as to the origin of his type specimen, "Ad fodinas Insulae Spanish Town Americae legit Du. v. Rohr."<sup>1</sup> This may refer to Spanish Town, Jamaica, but we have no specimens from that island. *Pappophorum laguroideum* was described from the West Indies.

Cuba (Province of Habana), Porto Rico (Punta Aguila and on Desecheo and Mona Islands), St. Thomas, Guadeloupe, Dominica, Martinique, and Trinidad.

## 89. MONANTHOCHLOË Engelm.

Plants diœcious; spikelets 2 or 3-flowered, usually sessile in pairs, concealed in the upper sheaths; glumes leaflike, rigid, with membranaceous sheaths and short, strongly veined spreading blades, the first about equaling the uppermost floret; lemmas rather rigid, the palea with winged keels.

1. *Monanthochloë littoralis* Engelm. Trans. Acad. St. Louis 1: 436. 1859.

A low, extensively creeping, wiry perennial with erect, commonly paired branches and crowded short rigid squarrose blades, the inconspicuous spikelets hidden in the upper leaves.

Muddy seacoasts of the warmer parts of America, often forming extensive colonies. Originally described from Texas. Found in Cuba at Cayo Cruz (*Shafer* 2773).

## 90. GYNERIUM Humb. & Bonpl.

Plants diœcious; spikelets several-flowered; pistillate spikelets with long-attenuate glumes and smaller long-silky lemmas; staminate spikelets with shorter glumes and glabrous lemmas.

<sup>1</sup> De Rohr was inspector of agriculture in the island of St. Croix. He visited Jamaica, Martinique, Surinam, Cartagena, Cayenne, and St. Martha, his plants going mostly to Vahl. (See Lasègue, Mus. Bot. Deless. 489. 1845.)

1. *Gynerium sagittatum* (Aubl.) Beauv. Ess. Agrost. 138. pl. 24. f. 6. 1812.<sup>1</sup>

UVA GRASS.

*Saccharum sagittatum* Aubl. Pl. Guian. 1: 50. 1775.

*Gynerium saccharoides* Humb. & Bonpl. Pl. Aequin. 2: 112. pl. 115. 1809.

*Arundo saccharoides* Poir. in Lam. Encycl. Suppl. 4: 703. 1816.

Stout reeds often 10 meters tall, with culms clothed below with old sheaths, the blades having fallen, sharply serrulate blades, commonly 2 meters long and 4 to 6 cm. wide (forming a great fan-shaped summit to the sterile culms), and pale plummy densely flowered panicles 1 meter or more long, the main axis erect, the branches drooping.

River banks and low ground, forming dense colonies, West Indies and southern Mexico to South America. Originally described from French Guiana. *Gynerium saccharoides* was described from Cumaná, Venezuela. Found throughout the West Indies except the Bahamas. Called "wild cane," and in Cuba "caña de Castilla."

## 91. ARUNDO L.

Spikelets perfect. 2 to several-flowered; glumes about equaling the spikelet; lemmas bidentate, cuspidate between the teeth and with long silky hairs on the back; rachilla naked.

1. *Arundo donax* L. Sp. Pl. 81. 1753.

GIANT REED.

*Donax arundinaceus* Beauv. Ess. Agrost. 78, 161. pl. 16. f. 4. 1812.

Tall reeds with strong sparingly branching culms, elongate scabrous-margined flat blades, and densely flowered, slightly drooping panicles 30 to 60 cm. long, the spikelets about 1 cm. long.

River banks and moist ground, warmer parts of the Old World. Cultivated in America for ornament and occurring from Texas to California and southward to South America as an escape. Originally described from southwestern Europe. Found on nearly all of the West Indian islands, including Bermuda and the Bahamas. In Cuba called "giñin."

## 92. PHRAGMITES Trin.

Spikelets 2 to several-flowered, the lowest floret staminate or neuter, its lemma elongate; glumes shorter than the florets; lemmas acuminate; rachilla densely clothed with long silky hairs.

1. *Phragmites phragmites* (L.) Karst. Deutsch. Fl. 378. 1883. REED GRASS.

*Arundo phragmites* L. Sp. Pl. 81. 1753.

*Arundo occidentalis* Sieber; Schult. Mant. 2: 289. 1824.

*Phragmites martinicensis* Trin.; Steud. Nom. Bot. ed. 2. 2: 324. 1841.

Resembling *Arundo donax* but stoloniferous, panicle more open and drooping. Swamps throughout the temperate regions of the world, extending into the Tropics. Originally described from Europe. *Arundo occidentalis* and *Phragmites martinicensis* are based on Sieber 31 from Martinique. Called sometimes "wild cane."

Bahamas (New Providence, Andros), Jamaica, Santo Domingo, Porto Rico, Guadeloupe, Martinique, and Tobago.

<sup>1</sup> This name is based indirectly upon *Saccharum sagittatum* Aubl. Beauvois (op. cit. 153) refers "*Arundo sagittata* Aubl., Pers." to *Gynerium*. Under *Gynerium* he gives as synonym "*Arundinis spec. Aubl.*" and makes the combination "*Gy. sagittatum*." The species was described by Persoon (Syn. Pl. 1: 102. 1805) under *Arundo* and by Aublet under *Saccharum*.

93. *ERAGROSTIS* Host.

Spikelets few to many-flowered, strongly compressed; glumes and lemmas keeled, the lemmas 3-nerved; rachilla often continuous, the paleas usually persistent after the fall of the fruit.

Palea ciliate on the keels, the cilia usually as long as the width of the lemma.

Plants perennial; cilia rather soft, approximate.....3. *E. leonina*.

Plants annual; cilia stiff and somewhat distant.

Spikelets about 2 mm. long.....1. *E. amabilis*.

Spikelets usually 3 to 4 mm. long, sometimes many-flowered, mostly subsessile; panicle close and spike-like or, in var. *laxa*, somewhat lax and open.....2. *E. ciliaris*.

Palea not ciliate on the keels.

Spikelets dioecious; plants creeping.....4. *E. hypnoides*.

Spikelets perfect; plants not creeping.

Plants annual.

Lemmas glandular on the keel.....7. *E. cilianensis*.

Lemmas not glandular.

Margins of blades glandular.....8. *E. eragrostis*.

Margins of blades not glandular.

Panicle elongate, contracted, the minute spikelets crowded or glomerate.....10. *E. glomerata*.

Panicle not elongate, at least half as wide as long, the spikelets not crowded.

Spikelets 1.5 mm. wide.....5. *E. pilosa*.

Spikelets 2 mm. wide.

Spikelets ovate-lanceolate, mostly less than 5 mm. long; panicle rather lax.

6. *E. tephrosanthos*.

Spikelets linear, mostly 8 to 10 mm. long; panicle rather firm, the branches and branchlets somewhat stiffly and divaricately spreading.

9. *E. barrelieri*.

Plants perennial; spikelets 4 to 10 mm. or more long.

Plants low, mostly not over 20 cm. high, the culms wiry.

Inflorescence a strict raceme, the spikelets subsessile, rather remote.....12. *E. bahamensis*.

Inflorescence a narrow or open panicle.

Panicle branches viscid.....11. *E. glutinosa*.

Panicle branches not viscid.

Sheaths glabrous.....13. *E. cubensis*.

Sheaths sparsely pilose.....14. *E. berteroniana*.

Plants taller, often robust, over 30 cm. tall.

Branchlets of panicle elongate, capillary, stiffly spreading, bearing mostly single terminal spikelets.....15. *E. elliottii*.

Branchlets of panicle bearing several mostly short-pedicelled spikelets.

Lemmas acuminate; axils of panicle with a tuft of long hairs.....16. *E. acutiflora*.

Lemmas acute; axils of panicle naked or but rarely bearing a few hairs.

Plants rather slender, mostly less than 0.5 meter tall; blades about 1 mm. wide; panicle open, the spikelets on slender spreading pedicels.

17. *E. purpurascens*.

Plants robust, mostly more than 0.5 meter tall; blades more than 1 mm. wide; panicle open or somewhat condensed.-----18. *E. prolifera*.

1. *Eragrostis amabilis* (L.) Wight & Arn.; Hook. & Arn. Bot. Beechey Voy. 251. 1841.

*Poa amabilis* L. Sp. Pl. 68. 1753.

*Poa plumosa* Retz. Obs. Bot. 4: 20. 1786.

*Eragrostis plumosa* Link, Hort. Berol. 1: 192. 1827.

A low tufted branching annual, with slender ascending or spreading culms, linear blades, and handsome oblong panicles, the spikelets mostly borne along the lower side of the ascending branches.

Open ground and waste places, warmer regions of both hemispheres. A native of the Old World. Originally described from India. *Poa plumosa* was described from the East Indies.

Cuba, Jamaica (Hope Gardens), Porto Rico (Pastillo Springs), St. Jan, St. Kitts, Montserrat, Guadeloupe, Martinique, St. Vincent, Grenada, Trinidad, and Tobago.

2. *Eragrostis ciliaris* (L.) Link, Hort. Berol. 1: 192. 1827.

*Poa ciliaris* L. Syst. Nat. ed. 10. 2: 875. 1759.

Differs from the preceding in the dense narrow panicles, interrupted below, and in the larger crowded subsessile spikelets. The inflorescence of this species varies from the rather dense cylindrical panicle with short branches flowered to the base (the typical form) to one with stiffly ascending branches naked at base (such as *Curtiss* 76, Nassau, Bahamas) and to that with a lax panicle (*E. ciliaris laxa*). A form apparently confined to the Bahamas has a nearly simple panicle with elongate spikelets having (in the most extreme specimen, *Wilson* 7608, Caicos Islands) as many as 18 florets. This may represent a distinct species, but no other differentiating character appears to be correlated with the long spikelets. Another possibly distinct form is represented by *Shafer* 2751 (Cayo Paredon Grande, Camaguey, Cuba), with delicate culms 20 to 30 cm. long, blades not over 1 mm. wide, and open, relatively few-flowered panicles.

Open ground and waste places, warmer regions of both hemispheres. Apparently introduced in America, originally described from Jamaica. A common weed around towns. To be found on probably all the West Indian islands.

*ERAGROSTIS CILIARIS BRACHYSTACHYA* Boiss. Fl. Orient. 5: 582. 1884. *E. arabica* Jaub. & Spach, Illustr. 4: 31. pl. 322. 1850-53. This variety is common in Curaçao and the neighboring islands. The panicles are dense and ovoid. Forms approaching this are sometimes found in the West Indies (Morillos de Cabo Rojo, Porto Rico, *Britton, Cowell & Brown* 4713).

- 2a. *Eragrostis ciliaris laxa* Kuntze, Rev. Gen. Pl. 2: 774. 1891.

Panicle branches sometimes 3 cm. long, the spikelets scarcely crowded. In the specimens from the Lesser Antilles the cilia on the keels are short.

Habitat the same as for the species. Apparently confined to the West Indies. Originally described from St. Thomas, Barbados, and Trinidad.

Cuba, Jamaica, Dominica, and Martinique.

3. *Eragrostis leonina* sp. nov.

Perennial, caespitose; culms wiry, glabrous, erect or somewhat spreading, 20 to 60 cm. long, sparingly branching; sheaths glabrous, usually sparsely pilose



at the throat; ligule membranaceous, ciliate, 0.3 mm. long; blades glabrous or sparsely pilose, drying involute, attenuate-acuminate, 3 to 8 cm. long, 1 to 2 cm. wide; panicles oblong, rather loosely flowered, mostly 10 to 15 cm. long, the branches stiffly ascending, rather distant, single, spikelet-bearing from above the base, the lower 2 to 4 cm. long; axis and branches scabrous, the turgid pulvini pilose; spikelets tawny, linear, 3 to 4 mm. long, 6 to 10-flowered, the rachilla breaking up between the florets; glumes acute or subacute, scabrous on the keels, the first 1 mm. long, the second slightly longer; lemmas oblong, obtuse, minutely roughened, 1.3 mm. long, prominently 3-nerved, the lateral nerves two-thirds the distance from keel to margin; palea as long as the lemma, deciduous with it, ciliate on the keels, the cilia less than half as long as the width of the lemma.

Type in the U. S. National Herbarium, no. 865555, collected in thickets near railroad, at Zaza de Tunas, Province of Santa Clara, Cuba, August 25, 1909, by Brother León (no. 885). The only other specimen seen is *Britton* 2374, collected in palm barrens at Camaguey, Cuba.

This is the only perennial species we know having a ciliate palea.

4. *Eragrostis hypnoides* (Lam.) B. S. P. Prel. Cat. N. Y. 69. 1888.

*Poa hypnoides* Lam. Tabl. Encycl. 1: 185. 1791.

*Poa reptans* Michx. Fl. Bor. Amer. 1: 69. 1803.

*Eragrostis reptans* Nees, Agrost. Bras. 514. 1829.

Stoloniferous, forming mats, the flowering culms mostly 5 to 10 cm. tall; blades 1.5 to 2 cm. long, spreading; panicles small, more or less capitate, the pale, many-flowered spikelets commonly 1 cm. long.

Moist, open ground along streams throughout the United States and southward to Brazil. Originally described from tropical America. *Poa reptans* was described from Illinois.

Cuba, Santo Domingo, Porto Rico, and Trinidad.

5. *Eragrostis pilosa* (L.) Beauv. Ess. Agrost. 162. 1812.

*Poa pilosa* L. Sp. Pl. 68. 1753.

A tufted weedy annual, pilose at the summit of the sheaths and in the axils of the lower panicle branches, otherwise glabrous; culms ascending, mostly 20 to 30 cm. tall; panicles oblong, loosely many-flowered, commonly about one-third the entire height of the plant; spikelets about 4 mm. long.

Open grounds, fields, and waste places, warm and temperate regions of both hemispheres. Originally described from Italy. The West Indian specimens referred to this species are the form with more delicate, slender, flexuous panicle branches, apparently commoner in Asia and Africa than in Europe. Nash<sup>1</sup> doubtfully refers these specimens to *Eragrostis purshii* Schrad.

Cuba, Jamaica, Porto Rico (Bayamon), St. Croix, Guadeloupe, Dominica, Martinique, St. Vincent, Grenada, Barbados, and Tobago.

6. *Eragrostis tephrosanthos* Schult. Mant. 2: 316. 1824.

*Eragrostis delicatula* Trin. Mém. Acad. St. Pétersb. VI. Sci. Nat. 2<sup>1</sup>: 73. 1836.

In habit like the preceding, the culms usually lower, the panicles broader, often half the entire height of the plant.

Open ground, fields, and waste places, West Indies to Brazil. Originally described from Martinique. *Eragrostis delicatula* was described from Rio de Janeiro. Common in the Greater Antilles and Trinidad; less common in the Lesser Antilles. In Cuba called "ilusión."

Grisebach<sup>2</sup> refers this species to *E. poacoides* Beauv.

<sup>1</sup> Bull. Torrey Club 30: 388. 1903.

<sup>2</sup> Fl. Brit. W. Ind. 532. 1864.

7. *Eragrostis cilianensis* (All.) Link; Vign. Lut. Malpighia 18: 386. 1904.<sup>1</sup>

*Poa cilianensis* All. Fl. Pedem. 2: 246. 1785.

*Eragrostis major* Host, Icon. Gram. Austr. 4: 14. 1809.

*Eragrostis megastachya* Link, Hort. Berol. 1: 187. 1827.

Culms erect or often spreading; panicles rather compact, 2 to 10 cm. long, greenish or often whitish, the spikelets many-flowered, larger than in the other annual species; plant giving off a disagreeable odor.

A common weed in the United States. Originally described from Europe. Found in Bermuda.

8. *Eragrostis eragrostis* (L.) Karst. Deutsch. Fl. 389. 1883.

*Poa eragrostis* L. Sp. Pl. 68. 1753.

Culms ascending, 30 to 40 cm. long; blades scabrous above; panicles oblong, rather loosely flowered, the pale spikelets 5 to 7 mm. long.

A European species introduced in the United States; found in Haiti and Martinique.

9. *Eragrostis barrelieri* Daveau, Journ. de Bot. 8: 289. 1894.

Much like *E. eragrostis* in habit; small axillary panicles commonly borne in the sheaths.

An Old World species introduced in Texas and St. Croix.

10. *Eragrostis glomerata* (Walt.) L. H. Dewey, Contr. U. S. Nat. Herb. 2: 543. 1894.

*Poa glomerata* Walt. Fl. Carol. 80. 1788.

*Poa conferta* Ell. Bot. S. C. & Ga. 1: 158. 1816.

*Eragrostis conferta* Trin. Mém. Acad. St. Pétersb. VI. Math. Phys. Nat. 1: 409. 1830.

Robust, sometimes as much as 2 meters tall and appearing like a perennial, freely branching, the branches sometimes fascicled; blades elongate; panicles as much as 40 cm. long, narrowly contracted, densely flowered, the spikelets minute.

Moist, low ground, southeastern United States to Uruguay. *Poa glomerata* and *P. conferta* were described from South Carolina.

In the West Indies known from Trinidad only, where it forms colonies in damp places in the western part of the island from Port of Spain to La Brea.

11. *Eragrostis glutinosa* (Swartz) Trin. Mém. Acad. St. Pétersb. VI. Math. Phys. Nat. 1: 397. 1830.

*Poa glutinosa* Swartz, Prodr. Veg. Ind. Occ. 26. 1788.

*Eragrostis sudans* Griseb. Cat. Pl. Cub. 227. 1866.

Low, tufted, the wiry ascending culms about 10 cm. tall, branching; blades involute, nearly equaling the small open panicles, the axis and branches viscid, seeds and dirt adhering to them.

Sandy soil, Cuba and Jamaica. Originally described from the latter island. *Eragrostis sudans* was described from Cuba, the type being Wright 3422.

12. *Eragrostis bahamensis* Hitchc. Rep. Mo. Bot. Gard. 4: 149. 1893.

Tufted, usually about 15 cm. tall, the spreading simple wiry culms spikelet-bearing about half their length, the spikelets appressed or ascending, 6 to 8 mm. long, firm and hard, mostly solitary; blades involute, firm, a woolly tuft on the auricles at the summit of the sheath.

Rocky soil, Bahamas; originally described from Inagua.

Bahamas (Calcos, Acklin, Inagua, Little Inagua, Ruin Cay, Turks Island).

<sup>1</sup> For synonymy and discussion see Hubbard, Philippine Journ. Sci. C. Bot. 8: 159. 1913.

**13. *Eragrostis cubensis* Hitchc. Contr. U. S. Nat. Herb. 12: 243. 1909.**

Similar to the preceding, commonly taller, the culms branching, the blades laxer; inflorescence a nearly simple panicle, the spikelets longer, less firm. Immature or depauperate specimens may be distinguished from *E. bahamensis* by the pilose, not woolly, tapering or truncate, not auricled summit of the sheath.

Sandy or rocky soil, Cuba and Jamaica (Lititz and Southern Manchester). Described from Cuba, *Curtiss* 420, from the Isle of Pines, being the type. Grisebach<sup>1</sup> refers this species to *E. bahiensis* Schrad.

**14. *Eragrostis berteroniana* (Schult.) Steud. Nom. Bot. ed. 2. 1: 562. 1840.**

*Megastachya berteroniana* Schult. Mant. 2: 330. 1824.

*Poa berteroniana* Kunth, Rév. Gram. 1: 112. 1829.

This little-known species was described from Santo Domingo, where it was collected by Bertero. There is in the Krug and Urban Herbarium a portion of the type specimen which was received from the Sprengel Herbarium. There is also in the Trinius Herbarium a specimen from the same collection. No other collections have been seen. The species differs from *Eragrostis cubensis* in having villous sheaths and a more open panicle.

**15. *Eragrostis elliotii* S. Wats. Proc. Amer. Acad. 25: 140. 1890.**

*Poa nitida* Ell. Bot. S. C. & Ga. 1: 162. 1816, not *Poa nitida* Lam. 1791, nor

*Eragrostis nitida* Link, 1827.

*Eragrostis macropoda* Pilger in Urban, Symb. Antill. 4: 106. 1903.

Tufted, about 50 cm. tall, the rather stiff leaves mostly clustered toward the base, the very diffuse few-flowered panicle more than half the entire height of the plant, the panicle axis and the capillary branches fragile.

Sandy savannas and sterile hills, southeastern United States on the Coastal Plain and in the West Indies. Originally described from South Carolina. *Eragrostis macropoda* was described from Cataño, Porto Rico (*Sintenis* 1233), the author differentiating it from "*E. elliotii*" by the elongate pedicels. Pilger's observations, however, show that he was really distinguishing it from *E. refracta* (Muhl.) Scribn., which he supposed to be *E. elliotii*.

Bahamas (New Providence, Abaco, Eleuthera), Cuba, Jamaica (Lititz and Southern Manchester), Santo Domingo, Porto Rico, and St. Thomas.

**16. *Eragrostis acutiflora* (H. B. K.) Nees, Agrost. Bras. 501. 1829.**

*Poa acutiflora* H. B. K. Nov. Gen. & Sp. 1: 161. 1816.

Tufted, rather rigid, with sparingly branching culms and erect blades, the short-pedicelled spikelets approximate along the distant, stiffly spreading primary panicle branches.

Ditches and open moist soil, northern South America. Found in Trinidad (Piarco Savanna, *Hitchcock* 10344). Originally described from Colombia.

**17. *Eragrostis purpurascens* (Spreng.) Schult. Mant. 2: 317. 1824.**

*Poa purpurascens* Spreng. Nov. Prov. Hal. 33. 1819.

Culms ascending or spreading, sparingly branching below; panicles commonly about one-third the entire height of the plant, about two-thirds as wide as long, the slender flexuous branches, branchlets, and pedicels divergent; spikelets about 8 mm. long, dark-colored, the lemmas thin, the lateral nerves obscure.

Open ground and rocky hills, Brazil to Argentina; also in Antigua (*Duss* 3; *Wulfschlaegel* 644). Originally described from Uruguay. This is the species described by Grisebach<sup>1</sup> as *Eragrostis prolifera*. The plants from Antigua

<sup>1</sup> Fl. Brit. W. Ind. 532. 1864.

agree with Nees's description of *Eragrostis purpurascens*<sup>1</sup> and with the Sello specimen cited by him.

18. *Eragrostis prolifera* (Swartz) Steud. Syn. Pl. Glum. 1: 278. 1854.

*Poa prolifera* Swartz, Prodr. Veg. Ind. Occ. 27. 1788.

*Poa domingensis* Pers. Syn. Pl. 1: 88. 1805.

*Eragrostis gigantea* Trin. Mém. Acad. St. Pétersb. VI. Math. Phys. Nat. 1: 403. 1830.

*Eragrostis domingensis* Steud. Syn. Pl. Glum. 1: 278. 1854.

*Eragrostis excelsa* Griseb. Cat. Pl. Cub. 227. 1866.

Culms often in large clumps, erect, sometimes stoloniferous, commonly robust, as much as 2 meters tall, the branches sometimes fascicled; blades elongate, involute toward the ends; panicles large, open, or somewhat contracted, the spikelets pale, usually many-flowered. Specimens of this species from the West Indies rarely show indication of stolons, and the branches are but sparingly fascicled. At Cartagena, Colombia, where the species is abundant on the sand spit, the plants develop extensive stolons with tufts of branches, suggesting the name "*prolifera*."

Sandy soil near the coast, West Indies and northern South America. *Poa prolifera* was originally described from "Insulae caribaeae." Swartz later<sup>2</sup> gives as the localities, "Lucia, Guadeloupe." *Poa domingensis* and *E. gigantea* were described from Santo Domingo and *E. excelsa* from Cuba, the type being Wright 3425 from Toscana, Pinar del Río.

Bahamas (Whale Cay), central and western Cuba, Grand Cayman, south-eastern Jamaica, Haiti, Guadeloupe, and Martinique.

94. SENITES Adans.

Spikelets few to several-flowered, the lowest floret perfect, the others staminate, the rachilla joint between the perfect and staminate florets elongate; glumes and fertile lemma herbaceous, broad, with transverse veins between the nerves, obtuse or truncate, the glumes about half as long as the lemma; sterile lemmas membranaceous, narrower, acute.

Culms upright at the base; summit of the sheaths glabrous.....1. *S. zeugites*.

Culms trailing; summit of the sheaths as well as of the petioles bearing stiff hairs.....2. *S. haitiensis*.

1. *Senites zeugites* (L.) Nash; Hitchc. Contr. U. S. Nat. Herb. 12: 127. 1908.

*Apluda zeugites* L. Syst. Nat. ed. 10. 2: 1306. 1759.

*Zeugites jamaicensis* Raenschel, Nom. Bot. ed. 3. 270. 1797, nomen nudum.

\* *Zeugites americana* Willd. Sp. Pl. 4: 204. 1805.

A loosely tufted branching glabrous clambering perennial 0.5 to 1 meter tall; culms glossy brown or black, resembling fern stipes; blades on slender, often spreading petioles, ovate, 2.5 to 4 cm. long; panicles mostly 5 to 7 cm. long, loosely flowered, the branches and pedicels capillary; glumes and fertile lemma truncate.

Rich woods, above 1,000 meters altitude. Blue Mountains, Jamaica. Described from Jamaica.

2. *Senites haitiensis* (Pilger).

*Zeugites americana* subsp. *haitiensis* Pilger in Urban, Symb. Antill. 6: 3. 1909.

Culms very slender, trailing, rooting at the nodes; blades ovate, about 2 cm. long; glumes and fertile lemma abruptly tapering at summit. Known only

<sup>1</sup> Agrost. Bras. 506. 1829.

<sup>2</sup> Fl. Ind. Occ. 1: 216. 1797.

from the type specimen collected in 1896 by Picarda (no. 1523) on Mount Furcy, Haiti.

#### 95. ORTHOCLADA Beauv.

Spikelets articulated below the glumes, 1-flowered with a prolongation of the rachilla, or 2-flowered, the florets distant; glumes and lemmas acuminate.

##### 1. *Orthoclada laxa* (Rich.) Beauv.; Nees, Agrost. Bras. 522. 1829.

*Aira laxa* Rich. Act. Soc. Hist. Nat. Paris 1: 106. 1792.

*Panicum rariflorum* Lam. Encycl. 4: 746. 1798.

*Orthoclada rariflora* Beauv. Ess. Agrost. 69. pl. 14. f. 9. 1812.

A stoloniferous perennial; flowering culms ascending, leafy, simple, commonly 1 meter long; blades slender-petioled, lanceolate, mostly 12 to 15 cm. long, about 2.5 cm. wide; panicle large, as broad as long, the long slender naked branches and capillary branchlets at first erect, finally stiffly divergent, bearing 1 to few spikelets at the extremities.

Rich woods, southern Mexico to Brazil; also in Guadeloupe and Trinidad. Originally described from Cayenne. *Panicum rariflorum* was also described from Cayenne.

#### 96. STREPTOGYNE Beauv.

Spikelets several-flowered, subsessile in a long one-sided raceme; glumes unequal, much shorter than the elongate terete callus-tipped florets; lemmas firm, tapering into a slender awn; palea about as long as the lemma; stigmas 3, elongate, persistent, coiled, the mature fruits hanging by these entangled stigmas.

##### 1. *Streptogyne crinita* Beauv. Ess. Agrost. 80. pl. 16. f. 8. 1812.

An erect perennial, 1 to 1.5 meters tall, with elongate leaves mostly aggregated at the base and reaching beyond the base of the inflorescence, the blades 1 to 1.5 cm. wide, and a slender spike 30 to 50 cm. long, the axis rather firm, the short-pedicled slender spikelets appressed, about 3 cm. long, excluding the slender awns and curled stigmas.

Rich woods, Veracruz and Trinidad (Tabaquite, Caparo Forest) to Brazil. "Carolina," the locality given with the original description, is an error. Beauvois also mentions Guiana.

#### 97. UNIOLA L.

Spikelets strongly compressed, few to many-flowered, the lower 1 to 4 florets empty; glumes and lemmas keeled, firm, the glumes small, the lemmas faintly many-nerved; paleas rigid, the keels broadly winged.

Spikelets 8 to 10 mm. broad, in a drooping panicle-----1. *U. paniculata*.

Spikelets less than 2 mm. wide, closely aggregated in numerous spikes, forming a long narrow erect inflorescence-----2. *U. virgata*.

##### 1. *Uniola paniculata* L. Sp. Pl. 71. 1753.

SEASIDE OATS.

A robust tufted smooth perennial, often 2 meters tall, with long, tough, involute blades and long panicles of pale heavy spikelets, commonly 2.5 cm. long.

Sandy seacoasts, Virginia to South America. Originally described from "Carolina." In Cuba called "arana."

Bahamas (New Providence, Andros, Inagua) and Cuba.

##### 2. *Uniola virgata* (Poir.) Griseb. Fl. Brit. W. Ind. 531. 1864.

*Poa virgata* Poir. in Lam. Encycl. 5: 78. 1804.

*Uniola racemiflora* Trin. Mém. Acad. St. Pétersb. VI. Sci. Nat. 2<sup>1</sup>: 55. 1836.

*Uniola sparta* Trin. Linnaea 10: 307. 1836.

*Eleusine procera* Spreng.; Steud. Nom. Bot. ed. 2. 1: 549. 1840, as synonym of *Uniola racemiflora*.

Plants in large clumps with many sterile shoots, the culms less robust than in *U. paniculata*, 1 to 2 meters tall, the closely involute blades hard and very flexuous, the panicle stiffly erect, 40 to 60 cm. long, the slender stiff branches narrowly ascending.

Rocky seacoast, West Indies. Originally described from Santo Domingo. *Uniola racemiflora* was also described from Santo Domingo; *U. sparta* was described from Cuba.

Bahamas (New Providence, Eleuthera), Cuba (Punta Brava, *Rugel* 870), Jamaica (south coast), Haiti, Santo Domingo, Porto Rico (south coast and the island of Vieques), and St. Jan.

### 98. DISTICHLIS Raf.

Plants diœcious; spikelets compressed, several-flowered, the glumes and lemmas firm, keeled, the lemmas faintly many-nerved.

1. *Distichlis spicata* (L.) Greene, Bull. Calif. Acad. 2: 415. 1887. SALT GRASS.  
*Uniola spicata* L. Sp. Pl. 71. 1753.

*Distichlis maritima* Raf. Journ. de Phys. 89: 104. 1819.

A low erect smooth perennial, with long running rhizomes, slender culms, spreading firm involute blades, and small compact panicles, the spikelets about 1 cm. long. Extensive colonies of sterile plants may be recognized by the overlapping sheaths and conspicuously closely distichous stiff blades.

Salt marshes and alkaline meadows, United States, Mexico, and northern West Indies. Originally described from the Atlantic coast of North America. *Distichlis maritima* was based on *Uniola spicata*, though the specific name appears to have been taken from *Uniola maritima* Michx., which Rafinesque cites as a synonym. The latter is the same as *Uniola paniculata* L.

Bahamas (New Providence, Watlings Island, Inagua) and Cuba.

### 99. BRIZA L.

Spikelets several to many-flowered, the florets crowded, almost horizontal; glumes and lemmas broad, subchartaceous, the margins scarious; palea much smaller than its lemma.

Spikelets few, 1 cm. wide.....1. *B. maxima*.  
Spikelets numerous, 0.5 cm. wide.....2. *B. minor*.

1. *Briza maxima* L. Sp. Pl. 70. 1753.

Slender annuals 30 to 60 cm. tall with flat roughish blades and few-flowered panicles, the large handsome spikelets nodding on long capillary pedicels.

Open ground and grass land, introduced occasionally in America. Originally described from Europe. Found in the Blue Mountains of Jamaica, especially around Cinchona.

2. *Briza minor* L. Sp. Pl. 70. 1753.

A weak-stemmed annual 30 to 50 cm. tall with thin flat scabrous blades and loosely flowered panicles, the branchlets subcapillary but stiffly spreading, the spikelets triangular-ovate, nodding.

Open ground, sparingly introduced in America from Europe, whence originally described. Found in the Blue Mountains of Jamaica.

### 100. DACTYLIS L.

Spikelets 2 to 5-flowered, strongly compressed, subsessile in dense fascicles, these paniculate; glumes and lemmas keeled, mucronate, or the lemma awn-tipped.

1. *Dactylis glomerata* L. Sp. Pl. 71. 1753.

ORCHARD GRASS.

A rather coarse roughish perennial commonly about 1 meter tall, with flat blades and panicles of few to several branches naked at base, bearing toward the ends clusters of densely crowded, sparsely pilose spikelets, these 0.8 to 1 cm. long.

Commonly cultivated in the United States as a meadow grass and frequent as an escape. Found in Jamaica (*Hart* 744, the locality unknown).

## 101. POA L.

Spikelets small, few-flowered; glumes keeled, acute; lemmas herbaceous with scarious tips, keeled, 5-nerved, awnless.

Plants annual.....1. *P. annua*.

Plants perennial, producing rhizomes.....2. *P. compressa*.

1. *Poa annua* L. Sp. Pl. 68. 1753.

ANNUAL BLUEGRASS.

*Poa infirma* H. B. K. Nov. Gen. & Sp. 1: 158. 1816.

A low tufted soft smooth annual, the culms decumbent at base, the pale open panicles commonly about 5 cm. long.

Open ground and grass land throughout the temperate regions of North America and extending southward in the mountains; introduced from Europe, whence originally described. *Poa infirma* was described from Colombia.

Bermuda, Cuba (Habana), and in the Blue Mountains of Jamaica.

2. *Poa compressa* L. Sp. Pl. 69. 1753.

CANADA BLUEGRASS.

A wiry perennial with extensively creeping slender rhizomes, slender flat culms, and narrow, rather densely flowered panicles.

Open ground and grass land; throughout the United States, probably introduced from Europe. Originally described from Europe and North America. Found introduced at high altitudes in Jamaica (near summit of Blue Mountain Peak, *Hitchcock* 9371) and Haiti (Morne Franchant, alt. 1,900 meters, *Picarda* 1019).

## 102. FESTUCA L.

Spikelets few to several-flowered; glumes small; lemmas firm, convex or keeled toward the summit only, awned from the tip.

First glume more than half as long as the second.....1. *F. bromoides*.

First glume less than half as long as the second.....2. *F. myurus*.

1. *Festuca bromoides* L. Sp. Pl. 75. 1753.

A slender tufted annual 30 to 50 cm. tall, with narrow blades and narrow, nearly simple panicles of short-pedicelled slender-awned 4 to 6-flowered spikelets.

Open and waste places, introduced in the United States, especially on the Pacific coast. Originally described from Europe. Found in the Blue Mountains of Jamaica.

2. *Festuca myurus* L. Sp. Pl. 74. 1753.

Similar to the preceding, the culms weaker, the panicle longer and narrower, the spikelets 2 or 3-flowered, the awns more delicate.

Waste places and open ground, introduced in America. Originally described from Europe. Found in the Blue Mountains of Jamaica.

*FESTUCA ELATIOR* L. Sp. Pl. 75. 1753. MEADOW FESCUE. An erect perennial with awnless spikelets, frequently cultivated in the United States as a meadow grass; represented from Jamaica by a specimen without locality (*Hart* 743).

\* 103. **SCLEROPOA** Griseb.

Spikelets small, loosely many-flowered; glumes and lemmas firm with scarious tips.

1. *Scleropoa rigida* (L.) Griseb. Spic. Fl. Rnm. 2: 431. 1844.

*Poa rigida* L. Amoen. Acad. 4: 265. 1759.

A low-spreading glabrous annual, usually not over 10 or 15 cm. tall, with soft linear blades and stiff spikelike few-flowered panicles.

Sparingly introduced in the United States. Frequent in Bermuda. Originally described from Europe.

104. **BROMUS** L.

Spikelets several to many-flowered; glumes unequal, shorter than the florets; lemmas convex or keeled, 5 to 9-nerved, awnless or awned from between two minute teeth.

Awn of lemma longer than the body-----1. *B. sterilis*.

Awn of lemma short or none-----2. *B. unioloides*.

1. *Bromus sterilis* L. Sp. Pl. 77. 1753.

A weedy pubescent slender annual, about 50 cm. tall, with a nodding panicle of long-awned spikelets, the scabrous awns commonly 5 cm. long.

Waste places, sparingly introduced in America. Originally described from Europe. Found in the Blue Mountains of Jamaica.

2. *Bromus unioloides* H. B. K. Nov. Gen. & Sp. 1: 151. 1816. RESCUE GRASS.

Annual, commonly 1 meter tall, with velvety sheaths and large open drooping panicles, the strongly flattened spikelets 2.5 to 3.5 cm. long.

Cultivated in the southern United States and occasional as an escape. Originally described from Ecuador. Introduced in Jamaica (Hope Grounds and Cinchona).

105. **LOLIUM** L.

An Old World genus with several-flowered spikelets, sessile on opposite sides of the slender axis, the glume next the axis wanting, represented by one specimen from Jamaica (*Hart* 739, without locality) of *L. multiflorum* Lam., with awned florets exceeding the glume, and by two from Cuba (*León* 1583, Calvario, and *León* 5052, Vibora-Habana) of *L. temulentum arvense* (With.) Bab., with awnless florets exceeded by the glume.

106. **HORDEUM** L.

Spikelets 1-flowered, in clusters of 3 at each joint of an articulate rachis, the middle spikelet sessile, perfect, the lateral spikelets stipitate, reduced to the awnlike glumes; glumes and lemmas awned.

1. *Hordeum pusillum* Nutt. Gen. Pl. 1: 87. 1818.

A low, usually branched annual with cylindrical spikes 3 to 8 cm. long, a part of the glumes dilated above the base.

Open dry ground, western United States, but introduced eastward. Originally described from the Missouri Valley. Found in Bermuda.

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*PARIANA SYLVESTRIS* Nees (Agrost. Bras. 295. 1829), a Brazilian species, is mentioned by Grisebach<sup>1</sup> as having been found in St. Vincent by Guilding, "perhaps introduced."

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<sup>1</sup> Fl. Brit. W. Ind. 528. 1864.



107. *ARTHROSTYLIDIUM* Rupr.<sup>1</sup>

Spikelets few-flowered, in racemes, the lower 1 or 2 lemmas empty, the rachilla articulate between the florets (rarely below the glumes). In Cuba the species are called "tibist" as are those of *Lasclasis*.<sup>2</sup>

Blades subcapillary, 1 to 3 mm. wide, as much as 30 cm. long, drying involute.

1. *A. capillifolium*.

Blades not subcapillary, flat.

Tips of culms and branches retrorse-scabrous.

Blades about 6 mm. wide.....8. *A. haitiense*.

Blades 10 to 12 mm. wide.....9. *A. multispicatum*.

Tips of culms and branches not retrorse-scabrous.

Blades not over 5 cm. long, usually shorter (rarely 6 cm. long in young shoots).

Sheaths not bristly; inflorescence racemose.....2. *A. sarmentosum*.

Sheaths conspicuously squarrose-bristly at the summit; inflorescence elongate, consisting of distant groups of spikelets.

3. *A. distichum*.

Blades or some of them at least 8 cm. long; inflorescence racemose.

Sheaths not bristly at the summit, or with but one or two weak bristles.

Blades pubescent beneath, thick, rigid, the midnerve and margins prominent.....6. *A. urbanii*.

Blades glabrous.

Spikelets crowded, terminating the densely whorled leafy branches; blades acuminate.....5. *A. prestoei*.

Spikelets not crowded, borne on solitary or fascicled axillary branchlets; blades obtuse at tip.

13. *A. obtusatum*.

Sheaths bristly at the summit.

Bristles 1 to 2 cm. long, some of them squarrose or reflexed, not curled and tangled at the tips.....4. *A. fimbriatum*.

Bristles less than 5 mm. long, erect, the tips curled and tangled.

Blades pubescent beneath.....7. *A. pubescens*.

Blades glabrous.

Spikelets divergent on a zigzag axis, the flowering branches axillary.....10. *A. excelsum*.

Spikelets erect or appressed, the axis not zigzag.

Inflorescence of slender racemes, leafless or nearly so.....11. *A. cubense*.

Inflorescence of narrow panicles, terminating leafy branches.....12. *A. angustifolium*.

1. *Arthrostylidium capillifolium* Griseb. Mem. Amer. Acad. p. ser. 8: 531. 1862.  
*Arundinaria capillifolia* Hack. Oesterr. Bot. Zeitschr. 53: 69. 1903.

<sup>1</sup>In the tribe Bambosae the genera are here accepted as distinguished by Hackel (Engl. & Prantl, Pflanzenfam. 2<sup>2</sup>: 1887). Further field study and collections of flowering plants are necessary before the true generic characters of this tribe can be understood.

<sup>2</sup>In this and other genera of bamboos the description of habit is necessarily omitted in those species not observed by the authors and not adequately described from living plants.

Climbing to a height of 15 meters or more, repeatedly branching, swinging down from the trees in great curtains, or festooning lower growth, the linear or filiform blades crowded on short sterile branchlets, these arranged in dense whorls like great pompons at the distant nodes; inflorescence of numerous slender wiry, not zigzag racemes borne in the whorls of branchlets, the appressed rather distant spikelets about 1 cm. long.

Dryish thickets and wooded slopes, northern West Indies. Originally described from eastern Cuba, the type being *Wright* 738.

Bahamas (Andros, Great Exuma, New Providence), Cuba, Porto Rico (Maricao, Sabana Grande, and on the island of Vieques), and St. Thomas.

**2. *Arthrostylidium sarmentosum* Pilger in Urban, Symb. Antill. 4: 108. 1903.**

Culms apparently herbaceous, not over 3 mm. thick, high-climbing and pendent from trees as in the preceding; branchlets commonly 10 to 15 cm. long, leafy, in distant usually dense whorls, the foliage pale green, drying glaucous, the divergent blades 3.5 to 5 cm. long, 3 to 5 mm. wide, rather thin; inflorescence of numerous short-exserted terminal and axillary zigzag racemes of 2 to 5 narrow pubescent spikelets.

Along streams and trails; wet mountain forests, at higher altitudes, Province of Oriente, Cuba (Monte Verde, Yateras), and Porto Rico. Originally described from sterile specimens from Porto Rico, *Heller* 1089, Sierra de Luquillo, and *Sintenis* 354, 4046. Collected in flower only once<sup>1</sup> (*Chase* 6730, Amer. Gr. Nat. Herb. 399<sup>2</sup>) on the north slope of El Yunque, Porto Rico.

**3. *Arthrostylidium distichum* Pilger in Urban, Symb. Antill. 2: 342. 1901.**

Branches solitary or in small fascicles, the approximate lanceolate-acuminate spreading blades about 2.5 cm. long.

Only known from the type collection, *Wright* 3808 from Rangel, Pinar del Río, Cuba.

**4. *Arthrostylidium fimbriatum* Griseb. Mem. Amer. Acad. n. ser. 8: 531. 1862.**

Branches solitary(?), appressed; blades commonly reflexed, rather rigid, narrowly cuneate; racemes terminating nearly leafless branches, the axis straight, the spikelets appressed. Originally described as 1 to 3 feet tall, but probably several meters tall.

Dense mountain woods, eastern Cuba (*Wright* 1554, the type specimen, and Loma Mensura, *Shafer* 3771).

**5. *Arthrostylidium prestoei* Munro, Kew Bull. Misc. Inf. 1895: 186. 1895; Pilger in Urban, Symb. Antill. 2: 338. 1901.**

Culms rather robust, bearing at the distant nodes dense whorls of slender branches about 30 cm. long, these bearing 1 or 2 rather thin elongate-lanceolate blades toward their summits and terminating in a densely flowered, mostly one-sided raceme.

Trinidad and Colombia. Described from specimens collected by Prestoe in Trinidad (*Trin. Bot. Gard. Herb.* 1675) and from plants cultivated at Kew. Found also in Caparo Forest (*Broadway* 4922).

**6. *Arthrostylidium urbanii* Pilger in Urban, Symb. Antill. 2: 339. 1901.**

*Arundinaria urbanii* Hack. Oesterr. Bot. Zeltschr. 53: 69. 1903.

Rather robust, bearing stiff wiry branches in whorls at the distant nodes, the rather rigid sublinear blades often reflexed, readily falling from the crowded overlapping sheaths; branches terminating in slender racemes, the spikelets appressed to the straight axis.

<sup>1</sup> Chase, Bot. Gaz. 58: 277-279. pl. 21. 1914.

<sup>2</sup> See footnote, p. 405.

Known only from the type collection, *Wright* 3810 from Cuba, the particular locality unknown, and from *León* 4446, collected at San Diego de los Baños, Cuba.

7. *Arthrostylidium pubescens* Rupr. Mém. Acad. St. Pétersb. VI. Sci. Nat. 3<sup>1</sup>: 119. 1839.

*Arundinaria pubescens* Hack. Oesterr. Bot. Zeitschr. 53: 69. 1903.

Culm slender, roughish, the leafy sterile branches 8 to 10 cm. long, rather rigid, divergent, in remote fascicles, the rough leaves 8 to 15 cm. long, 6 to 10 mm. wide; racemes in dense fascicles, the spikelets appressed to the stiff axis.

Mountain tops, Trinidad, whence originally described, and Venezuela.

8. *Arthrostylidium haitiense* (Pilger).

*Arundinaria haitiensis* Pilger in Urban, Symb. Antill. 5: 288. 1907.

Described as climbing 2 to 3 meters high, the young internodes scabrous; branches numerous, about 20 cm. long, in distant fascicles; blades 5 to 7 cm. long, about 6 mm. wide, with a petiole about 2 mm. long; spikelets narrow, closely appressed to the axis, few in short racemes terminating the branches.

Shady ravines, Haiti. Known only from the type collection, *Buch* 929, Monte Furcy, near Port au Prince.

9. *Arthrostylidium multispicatum* Pilger in Urban, Symb. Antill. 2: 341. 1901.

*Arundinaria multispicata* Hack. Oesterr. Bot. Zeitschr. 53: 69. 1903.

Climbing high, the slender growing ends of the culms and branches beset with very short retrorse prickles, these ends, often 4 meters long, swinging in the breeze like whip lashes until a support is found, the radiating short sharp scale-covered branch buds then developing, these long grappling branches freely produced, forming a dense tangled mass; prickles deciduous, the old culms smooth; sterile branchlets whorled, 15 to 30 cm. long, the spreading blades 6 to 8 cm. long, 10 to 12 mm. wide (on vigorous shoots sometimes larger), the floriferous branches rather shorter, bearing 1 to 3 leaves and slender terminal and axillary racemes, the spikelets appressed to the straight axis.

Wooded mountain slopes, Cuba (Yayabo River, Santa Clara, and Santiago) and Porto Rico (Maricao, Adjuntas, Jayuya). Originally described from Porto Rico, two specimens being mentioned, *Sintenis* 209 from Maricao and *Sintenis* 4016 [4106?] from Adjuntas.

10. *Arthrostylidium excelsum* Griseb. Fl. Brit. W. Ind. 529. 1864.

*Arundinaria excelsa* Hack. Oesterr. Bot. Zeitschr. 53: 69. 1903.

High-climbing; branchlets whorled, 20 to 50 cm. long, the blades commonly 8 to 12 cm. long, 12 to 15 mm. wide; racemes terminal and axillary, the axis strongly zigzag, the spikelets divergent.

Hills, Dominica, Guadeloupe, Trinidad (whence originally described), and Tobago.

11. *Arthrostylidium cubense* Rupr. Mém. Acad. St. Pétersb. VI. Sci. Nat. 3<sup>1</sup>: 118. pl. 4. f. 13. 1839.

*Arundinaria cubensis* Hack. Oesterr. Bot. Zeitschr. 53: 69. 1903.

Culms slender; blades of primary branches 10 to 15 cm. long, 8 to 10 mm. wide, those of the ultimate flowering branchlets elongate, linear, 3 to 4 mm. wide; flowering branches very slender, 20 to 30 cm. long, naked or with one or two narrow blades at base, bearing a few distant appressed spikelets toward their ends.

Pendent on cliffs, central and western Cuba, the type specimen collected by Sagra.

12. *Arthrostylidium angustifolium* Nash, *Torreyia* 3: 172. 1903.

Culms 2 to 3 meters long, freely branching, clambering over shrubs; ultimate branches leafy, with short overlapping compressed sheaths and erect blades 3 to 4 mm. wide and as much as 25 cm. long, the branches terminating in strict panicles, the slender branchlets erect, the linear spikelets 2 to 3 cm. long.

Wooded mountain slope, El Yunque, Baracoa, Cuba. Known only from the type collection, *Underwood & Earle* 941.

13. *Arthrostylidium obtusatum* Pilger in Urban, *Symb. Antill.* 2: 340. 1901.

*Arundinaria obtusata* Hack. *Oesterr. Bot. Zeitschr.* 53: 69. 1903.

Inflorescence racemose, terminating fascicled leafy branches and borne in the axils; blades rather rigid, about 8 cm. long and 12 mm. wide, tapering from base to apex, the tip obtuse.

Known only from the original collections from the summit of Morne d'Amour, Martinique (*Duss* 563, 1310).

108. *CHUSQUEA* Kunth.

Spikelets small, with 1 perfect floret and 2 empty lemmas below it, the rachilla articulate below the glumes, the spikelets in small terminal panicles; blades disarticulating from the persistent sheaths.

1. *Chusquea abietifolia* Griseb. *Fl. Brit. W. Ind.* 529. 1864.

*Arundinaria? microclada* Pilger in Urban, *Symb. Antill.* 5: 289. 1907.

Crawling and climbing to a height of 7 meters or more, the slender culms festooning and forming an entanglement across mountain trails; branchlets about 10 cm. long, in whorls, the numerous rigid, spine-tipped, scabrous-margined blades 2 to 3 cm. long, drying glaucous; flowering branches leafy at base, terminating in a small few-flowered, nearly simple panicle, the spikelets short-pedicelled; very rarely flowering.

Wet woods, Blue Mountains, Jamaica, Porto Rico (Monte Alegrillo), and Haiti (Monte Furcy). Originally described from Jamaica, common in the Blue Mountains above 1,000 meters. The specimens from Cold Spring Gap collected by Harris (*Amer. Gr. Nat. Herb.* 400<sup>1</sup>) and by Hitchcock (no. 9734) are fertile; the others are sterile. *Arundinaria microclada* was described from sterile specimens collected at 1,500 meters altitude, in open woods on Monte Furcy, Haiti (*Picarda* 270, *Buch* 930). The *Picarda* specimen in the Krug & Urban Herbarium is about a meter long, apparently the pendent end of a culm, the short branchlets and small blades (12 to 15 mm. long) suggesting a dry situation. The sheaths are minutely pubescent as in the Porto Rico specimens; in Jamaica specimens the sheaths are pubescent on the margin only.

109. *PLANOTIA* Munro.

Spikelets as in *Chusquea*, crowded in a long dense panicle; culm herbaceous.

1. *Planotia virgata* (Griseb.) Munro, *Trans. Linn. Soc.* 26: 71. 1868.

*Platonia virgata* Griseb. *Fl. Brit. W. Ind.* 530. 1864.

Culms herbaceous, tall, robust, leafy below, the thickish blades commonly more than 1 meter long, about 5 cm. wide, long-attenuate, the margins serrulate; panicle much exceeding the leaves, about 75 cm. long and 2 cm. thick, compact, tawny, the small spikelets densely crowded.

Dense forests, mountains of Trinidad, the type collected at Tocuche by Crueger.

<sup>1</sup> See footnote, p. 405.

110. *BAMBOS* Retz.

Spikelets several to many-flowered, the glumes and sterile lemmas persistent after the fall of the florets; glumes small; lemmas firm, sharp-pointed or awn-tipped, sessile, solitary or in clusters on an elongate axis or the branches of a panicle; stamens 6.

Spikelets 3 to 6 cm. long-----1. *B. latifolia*.  
Spikelets 1 to 2 cm. long-----2. *B. vulgaris*.

1. *Bambos latifolia* Humb. & Bonpl. Pl. Aequin. 1: 68, *pl.* 21. 1808.

*Guadua latifolia* Kunth, Syn. Pl. Aequin. 1: 254. 1822.

Arborescent, as much as 8 meters tall, the summit nodding; spikelets cylindrical, more or less falcate.

Damp forests, Trinidad and northern South America. Originally described from Venezuela.

2. *Bambos vulgaris* Schrad.; Wendl. Coll. Pl. 2: 26, *pl.* 47. 1810.

COMMON BAMBOO.

*Bambusa sieberi* Griseb. Fl. Brit. W. Ind. 528. 1864.

Arborescent, as much as 10 meters tall, freely branching; flowering branches fascicled, elongate, leafless, the sessile spikelets radiate in clusters.

Cultivated in the Tropics of both hemispheres, the native country doubtful but not American. *Bambusa sieberi* was described from Martinique. Common in the West Indies as an escape from cultivation. Called in Cuba "caña brava."

BAMBOS NANA Roxb. (Fl. Ind. 2: 199. 1832), 2 to 3 meters tall, has spread from cultivation at Cinchona, Jamaica.

## DOUBTFUL SPECIES.

In the following list are given the names of species described from the West Indies, for which we have not been able to account:

*Aira gigantea* Steud. Syn. Pl. Glum. 1: 224. 1854. Described from a specimen in the herbarium of Mougeot, said to be very likely from the Antilles.

*Anatherum berterianum* Spreng.; Schult. Mant. 2: 443. 1824. "In Portorico et Guadeloupe." Has been referred to *Imperata*, but the description does not well apply.

*Anatherum pedunculatum* Desv. Opusc. 70. 1831. "Antillis." Possibly *Andropogon condensatus*.

*Avena lutea* L. f. Suppl. Pl. 112. 1781. *Trisetum luteum* Pers. Syn. Pl. 1: 97. 1805. "Martinique." The description does not apply to any species known from the West Indies.

*Cenchrus hirsutus* Spreng. Neu. Entd. 3: 15. 1822. "Hispaniola." The description does not agree with any species known to us from the West Indies.

*Cenchrus parviflorus* Poir. in Lam. Encycl. 6: 52. 1804. Described from Porto Rico. Probably *Chaetochloa geniculata*, but the description does not well apply.

*Chaetochloa corrugata parviflora* Scribn. & Merr. U. S. Dept. Agr. Div. Agrost. Bull. 21: 24. 1900. Based on *Cenchrus parviflorus* Poir. The species to which this name is applied is *Chaetochloa geniculata*.

*Chondrachyum scabrum* Nees; Steud. Syn. Pl. Glum. 1: 288. 1854. Described from "Ind. Occ." but the locality possibly erroneous. The description suggests Melica, which is not known from the West Indies.

*Digitaria* (?) *domingensis* Roem. & Schult. Syst. Veg. 2: 475. 1817, based on *Panicum domingense* Zuccagni.

*Digitaria repens* Kunth, Enum. Pl. 1: 84. 1833, as synonym of *Panicum domingense* Zuccagni.

*Echinochloa cubensis* Schult. Mant. 2: 596. 1824. Probably *Oplismenus hirtellus*. We have not been able to verify this citation.

*Festuca thouini* Steud. Syn. Pl. Glum. 1: 311. 1854. Possibly *Arundo donax* or Phragmites or a cultivated species of Cortaderia.

*Holcus cubanicus* Gleditsch; Schult. Mant. 2: 462. 1824, nomen nudum.

*Panicum confertum* Desv.; Poir. in Lam. Encycl. Suppl. 4: 279. 1816. "Antilles." Possibly *Isachne arundinacea*.

*Panicum domingense* Zuccagni in Roemer, Coll. Bot. 123. 1809. "St. Domingo." Possibly *Syntherisma villosa*.

*Panicum ocreatum* Willd.; Spreng. Syst. Veg. 1: 305. 1825, as synonym of *Setaria ocreata*.

*Panicum rohrii* Nees; Steud. Syn. Pl. Glum. 1: 76. 1854. "Ind. occ." The description does not apply to any species we know from the West Indies.

*Paspalum guadaloupense* Steud. Syn. Pl. Glum. 1: 18. 1854. "Guadaloupe." The description points to *Axonopus compressus*, but Grisebach<sup>1</sup> refers it to *Paspalum conjugatum* var. *subcordatum* Griseb., of which it is the basis.

*Paspalum koleopodium* Steud. Syn. Pl. Glum. 1: 18. 1854. "Guadaloupe." Grisebach refers this to *P. caespitosum*, but the description does not well agree with that species.

*Paspalum lagascae* Roem. & Schult. Syst. Veg. 2: 317. 1817. Based on *P. pubescens* Lag.

*Paspalum molle* Poir. in Lam. Encycl. 5: 34. 1804. "St. Thomas."

*Paspalum panicum* Smith in Rees's Cycl. 26: no. 14. 1813. "Jamaica." The description suggests *P. densum*.

*Paspalum pubescens* Lag. Gen. & Sp. Nov. 2. 1816, not Willd. 1809. Described from a specimen grown in Habana from seed sent by Sessé, probably from Mexico.

*Paspalum rhizomatosum* Steud. Syn. Pl. Glum. 1: 17. 1854. "Guadaloupe." A species with a decumbent base rooting at the nodes. Nash<sup>2</sup> refers it to *P. orbiculatum*, but the description does not well agree with that species nor does it agree with *P. reptans*. The species may be *P. nutans*.

*Paspalum sinuosum* Desv. Opusc. 57. 1831. "Antillis." Nash<sup>3</sup> refers this to *P. glabrum*.

*Paspalum strictum* Pers. Syn. Pl. 1: 86. 1805. "Insul. Antill. et ad St. Domingo." Nash<sup>4</sup> refers this to *P. paniculatum*.

*Piptatherum setosum* A. Rich. in Sagra, Hist. Cuba 11: 311. 1850. Referred by Grisebach<sup>5</sup> to *Andropogon setosus* (*Sorghastrum parviflorum*). The description does not well apply to the latter species.

*Reimaria diffusa* Spreng. Neu. Entd. 3: 14. 1822. "Martinica." Unidentifiable, description probably erroneous.

*Setaria ocreata* Spreng. Syst. Veg. 1: 305. 1825. The description points to *Oplismenus hirtellus*.

*Sorghum cubanicus* Schult. Mant. 2: 519. 1824.

*Vilfa intermedia* Trin. Gram. Unif. 156. 1824. "Ind. occ." In a later work the locality is given as "Mauritan." Probably not from the West Indies.

<sup>1</sup> Abh. Ges. Wiss. Göttingen 7: 262. 1857.

<sup>2</sup> N. Amer. Fl. 17: 194. 1912.

<sup>3</sup> Op. cit. 17: 187. 1912.

<sup>4</sup> Op. cit. 17: 189. 1912.

<sup>5</sup> Cat. Pl. Cub. 235. 1866.

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  3735. *Eragrostis elliottii*.
  4181. *Manisuris loricata*.
  4185. *Paspalum multicaule*.
  4328. *Eragrostis hypnoides*.

<sup>1</sup> It not infrequently occurs that two or more species have been distributed under the same number to different herbaria. Each citation in this list refers to a particular sheet in the National Herbarium.

<sup>2</sup> American grasses from the United States National Herbarium, Smithsonian Institution, distributed by the Systematic Agrostologist, United States Department of Agriculture.

BAKER, C. F., AND DIMMOCK.

4813. *Paspalum pulchellum*.  
4846. *Panicum fusiforme*.

BAKER, C. F., AND HASSELBRING, H.

7208. *Aristida curtifolia*.  
7211. *Aristida curtifolia*.

BAKER, C. F., AND O'DONOVAN.

4545. *Paspalum alterniflorum*.

BAKER, C. F., TRACY, S. M., AND HASSELBRING, H.

3096. *Paspalum denticulatum*.  
3097. *Paspalum notatum*.

BAKER, C. F., AND VAN HERMANN.

4269. *Lasiacis grisebachii*.

BAKER, C. F., AND WILSON, P.

304. *Lasiacis divaricata*.  
342. *Paspalum conjugatum*.  
385. *Paspalum distichum*.  
511. *Panicum diffusum*.  
512. *Panicum adpersum*.  
513. *Eleusine indica*.  
515. *Cenchrus echinatus*.  
522. *Chaetochloa geniculata*.  
537. *Sporobolus indicus*.  
543. *Paspalum conjugatum*.  
561. *Chaetochloa geniculata*.  
595. *Paspalum virgatum*.  
596. *Paspalum plicatulum*.  
599. *Andropogon virginicus*.  
602. *Valota insularis*.  
2293. *Distichlis spicata*.  
2348b. *Distichlis spicata*.

BAKER, C. F., AND ZARRAGOITIA.

4063. *Chaetochloa geniculata*.

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200. *Paspalum fimbriatum*.  
233. *Eleusine indica*.

240. *Echinochloa colonum*.  
263. *Dactyloctenium aegyptium*.  
265. *Cymbopogon citratus*.  
266. *Chloris radiata*.  
268. *Leptochloa filiformis*.  
269. *Paspalum conjugatum*.  
270. *Eragrostis ciliaris*.  
277. *Paspalum vaginatum*.  
343. *Eragrostis pilosa*.  
443. *Andropogon nodosus*.  
448. *Brachiaria erucaeformis*.  
450. *Panicum laxum*.  
453. *Chaetochloa geniculata*.  
455. *Paspalum virgatum*.  
458. *Ichnanthus pallens*.  
538. *Panicum reptans*.  
568. *Coix lachryma-jobi*.  
585. *Themeda quadrivalvis*.

BARRETT, O. W.

9. *Lasiacis divaricata*.  
57. *Chloris radiata*.  
61. *Panicum trichoides*.  
62. *Eleusine indica*.  
63. *Panicum fasciculatum*.  
64. *Echinochloa colonum*.  
72. *Andropogon bicornis*.  
73. *Paspalum paniculatum*.  
101. *Arundinella confinis*.

BENZON, A.

42. *Panicum capillare*.

BOLDINGH, I.

- 3512B. *Bouteloua vaneedeni*.  
5379. *Panicum hirticaule*.

BRACE, L. J. K.

1525. *Stenotaphrum secundatum*.  
3742. *Panicum dichotomiflorum*.  
3901. *Phragmites phragmites*.  
3993. *Eragrostis bahamensis*.  
3994. *Eleusine indica*.  
4003. *Sporobolus virginicus*.  
4077. *Aristida adscensionis*.  
4230. *Lasiacis divaricata*.  
4242. *Eragrostis ciliaris*.  
4251. *Sporobolus atrovirens*.  
4305. *Lasiacis divaricata*.  
4633. *Aristida adscensionis*.

<sup>1</sup> See specimens listed under Dash, J. S.

4805. *Paspalum portoricense*.  
 4812. *Panicum ghiesbreghtii*.  
 4882. *Syntherisma panicea*.  
 4951. *Andropogon glomeratus*.  
 5258. *Paspalum caespitosum*.

BRITTON, E. G.

6506. *Imperata brasiliensis*.

BRITTON, E. G., AND MARBLE, D.

520. *Eragrostis hypnoides*.  
 654. *Andropogon leucostachyus*.  
 678. *Lasiacis ligulata*.  
 1068. *Panicum laxum*.  
 1221. *Panicum laxum*.  
 1230. *Lasiacis ligulata*.  
 1347. *Andropogon bicornis*.

BRITTON, N. L.

122. *Eragrostis ciliaris*.  
 465. *Paspalum filiforme*.  
 1475. *Paspalum leptocaulon*.  
 1902. *Paspalum glabrum*.  
 1923. *Eragrostis prolifera*.  
 1930. *Chaetochloa setosa*.  
 1933. *Panicum reptans*.  
 2032. *Chloris paraguayensis*.  
 2035. *Sporobolus argutus*.  
 2105. *Chaetochloa setosa*.  
 2106. *Lasiacis divaricata*.  
 2123. *Eragrostis glutinosa*.  
 2124. *Cenchrus echinatus*.  
 2125. *Sporobolus domingensis*.  
 2139. *Eragrostis ciliaris*.  
 2148. *Bouteloua heterostega*.  
 2172. *Chaetochloa geniculata*.  
 2175. *Paspalum caespitosum*.  
 2176. *Leptochloa filiformis*.  
 2177. *Aristida adscensionis*.  
 2245. *Panicum reptans*.  
 2264. *Distichlis spicata*.  
 2281. *Panicum geminatum*.  
 2347. *Eragrostis tephrosanthos*.  
 2361. *Paspalum millegrana*.  
 2366. *Eriochloa subglabra*.  
 2368. *Paspalum paniculatum*.  
 2369. *Syntherisma sanguinalis*.  
 2373. *Eragrostis ellottii*.  
 2374. *Eragrostis leonina*.  
 2378. *Paspalum fimbriatum*.  
 2414. *Andropogon multinervosus*.

2519. *Leptochloa fascicularis*.  
 3193. *Panicum glutinosum*.  
 3200. *Oplismenus setarius*.  
 3375. *Isachne pygmaea*.  
 3401. *Leptochloa virgata*.  
 10022. *Sporobolus purpurascens*.  
 10048. *Arundinella deppeana*.

BRITTON, N. L., AND BRACE, L. J. K.

187. *Lasiacis divaricata*.  
 336. *Sporobolus domingensis*.  
 340. *Paspalum vaginatum*.  
 403. *Muhlenbergia capillaris*.  
 404. *Paspalum glabrum*.  
 405. *Sporobolus indicus*.  
 417. *Distichlis spicata*.  
 424. *Panicum diffusum*.  
 432. *Andropogon semiberbis*.  
 486. *Syntherisma panicea*.  
 504. *Leptochloa fascicularis*.  
 513. *Paspalum distichum*.  
 537. *Arthrostylidium capillifolium*.  
 598. *Paspalum secans*.  
 701. *Syntherisma panicea*.

BRITTON, N. L., BRITTON, E. G., AND  
 COWELL, J. F.

2103. *Paspalum paniculatum*.  
 2104. *Panicum fasciculatum*.  
 4014. *Syntherisma sanguinalis*.  
 4017. *Bouteloua heterostega*.  
 9673. *Panicum acuminatum*.  
 9732. *Achlaena piptostachya*.  
 9774. *Arthrostylidium capillifolium*.  
 12857. *Aristida scabra*.

BRITTON, N. L., BRITTON, E. G., EARLE,  
 F. S., AND GAGER, S.

6494. *Panicum parvifolium*.  
 6505. *Panicum acuminatum*.  
 6520. *Panicum cayennense*.

BRITTON, N. L., BRITTON, E. G., AND  
 GAGER, S.

6952. *Panicum wrightianum*.  
 7064. *Panicum aciculare*.  
 7075. *Panicum parvifolium*.  
 7170. *Panicum erectifolium*.  
 7201. *Panicum millegrana*.  
 7271. *Eragrostis cubensis*.  
 7275. *Panicum cayennense*.  
 7452. *Panicum boliviense*.

BRITTON, N. L., BRITTON, E. G., AND  
MARBLE, D.

- 476. *Panicum reptans*.
- 1758. *Cenchrus echinatus*.
- 1778. *Bouteloua heterostega*.

BRITTON, N. L., BRITTON, E. G., AND  
SHAFFER, J. A.

- 119. *Aristida cognata*.
- 127. *Cenchrus echinatus*.
- 128. *Eragrostis ciliaris*.
- 141. *Lasiacis sorghoidea*.

BRITTON, N. L., BRITTON, E. G., AND  
WILSON, P.

- 5510. *Eragrostis prolifera*.
- 5566. *Eragrostis prolifera*.
- 5583. *Gynerium sagittatum*.
- 13945. *Achlaena piptostachya*.
- 13996. *Tricholaena rosea*.
- 14141. *Sporobolus cubensis*.
- 14150. *Panicum erectifolium*.
- 14155. *Sacciolepis myuros*.
- 14173. *Leptocoryphium lanatum*.
- 14194. *Eragrostis cubensis*.
- 14198. *Aristida spiciformis*.
- 14216. *Panicum portoricense*.
- 14218. *Panicum chamaelonche*.
- 14221. *Panicum chamaelonche*.
- 14224. *Panicum acuminatum*.
- 14226. *Panicum lancearium*.
- 14228. *Panicum acuminatum*.
- 14235. *Panicum parvifolium*.
- 14310. *Andropogon virgatus*.
- 14344. *Vauota insularis*.
- 14357. *Panicum acuminatum*.
- 14392. *Panicum geminatum*.
- 14397. *Imperata brasiliensis*.
- 14399. *Imperata brasiliensis*.
- 14411. *Panicum polycaulon*.
- 14414. *Aristida curtifolia*.
- 14420. *Andropogon semiberbis*.
- 14422. *Sporobolus cubensis*.
- 14455. *Panicum cayennense*.
- 14616. *Oplismenus hirtellus*.
- 14621. *Panicum condensum*.
- 14638. *Panicum pilosum*.
- 14648. *Olyra latifolia*.
- 14659. *Lasiacis ruscifolia*.
- 14689. *Panicum geminatum*.
- 14741. *Panicum tenerum*.
- 14792. *Andropogon semiberbis*.
- 14923. *Panicum zizanioides*.

- 14934. *Cenchrus gracillimus*.
- 14939. *Paspalum bakeri*.
- 14944. *Eragrostis elliotii*.
- 14947. *Chloris petraea*.
- 14959. *Aristida erecta*.
- 14975. *Sporobolus cubensis*.
- 15009. *Sacciolepis vilvoides*.
- 15015. *Paspalum plicatulum*.
- 15043. *Syntherisma sanguinalis*.
- 15045. *Cenchrus echinatus*.
- 15065. *Lasiacis ruscifolia*.
- 15092. *Sporobolus argutus*.
- 15110. *Andropogon leucostachyus*.
- 15114. *Paspalum neesii*.
- 15184. *Panicum nitidum*.
- 15188. *Reynaudia filiformis*.
- 15190. *Luziola bahiensis*.
- 15199. *Distichlis spicata*.
- 15247. *Syntherisma panicea*.
- 15257. *Panicum aquaticum*.
- 15272. *Panicum distantiflorum*.
- 15294. *Paspalum bakeri*.
- 15296. *Cenchrus viridis*.
- 15337. *Paspalum bakeri*.
- 15353. *Mesosetum loliforme*.
- 15354. *Paspalum plicatulum*.
- 15355. *Axonopus compressus*.
- 15356. *Panicum barbinode*.
- 15359. *Paspalum debile*.
- 15361. *Syntherisma leucocoma*.
- 15362. *Sporobolus indicus*.
- 15363. *Syntherisma sanguinalis*.
- 15364. *Panicum tenerum*.
- 15368. *Syntherisma leucocoma*.
- 15369. *Aristida refracta*.
- 15370. *Sporobolus indicus*.
- 15378. *Chaetochloa geniculata*.
- 15379. *Panicum lancearium*.
- 15380. *Panicum tenerum*.
- 15381. *Panicum exiguiiflorum*.
- 15382. *Eragrostis cubensis*.
- 15383. *Panicum albomarginatum*.
- 15385. *Panicum tenerum*.
- 15520. *Eragrostis hypnoides*.
- 15549. *Lithachne pauciflora*.
- 15624. *Panicum parvifolium*.
- 15706. *Panicum erectifolium*.
- 15755. *Arthrostylidium capillifolium*.
- 15788. *Syntherisma sanguinalis*.
- 15790. *Paspalum caespitosum*.

BRITTON, N. L., AND BROWN, S.

- 5391. *Paspalum paniculatum*.
- 5392. *Panicum laxum*.

5398. *Panicum laxum*.  
 5512. *Leptochloa scabra*.  
 5513. *Eriochloa subglabra*.  
 5518. *Paspalum secans*.  
 5523. *Panicum reptans*.  
 5716. *Panicum laxum*.  
 5718. *Panicum portoricense*.  
 5719. *Eragrostis elliottii*.  
 5720. *Panicum parvifolium*.

BRITTON, N. L., AND COWELL, J. F.

238. *Sporobolus virginicus*.  
 245. *Eragrostis ciliaris*.  
 270. *Nazia aliena*.  
 282. *Echinochloa colonum*.  
 295. *Panicum trichoides*.  
 324. *Eragrostis tephrosanthos*.  
 359. *Syntherisma digitata*.  
 369. *Ichnanthus pallens*.  
 382. *Eragrostis ciliaris*.  
 394. *Panicum laxum*.  
 395. *Isachne disperma*.  
 432. *Panicum aquaticum*.  
 444. *Panicum trichoides*.  
 476. *Paspalum paniculatum*.  
 493. *Arthrostylidium sarmentosum*.  
 611. *Antheophora hermaphrodita*.  
 632. *Ichnanthus nemorosus*.  
 744. *Chaetochloa geniculata*.  
 883. *Ichnanthus pallens*.  
 895. *Arundinella confinis*.  
 949. *Ichnanthus pallens*.  
 953. *Arthrostylidium multispicatum*.  
 1008. *Ichnanthus axillaris*.  
 1013. *Paspalum paniculatum*.  
 1016. *Ryttilix granularis*.  
 1321. *Bouteloua heterostega*.  
 1405. *Paspalum secans*.  
 1449. *Paspalum millegrana*.  
 1451. *Eriochloa punctata*.  
 1545. *Antheophora hermaphrodita*.  
 1980. *Panicum trichoides*.  
 2093. *Panicum barbinode*.  
 2180. *Arthrostylidium sarmentosum*.  
 2182. *Panicum laxum*.  
 2186. *Paspalum orbiculatum*.  
 4026. *Andropogon fastigiatus*.  
 4064. *Panicum diffusum*.  
 4069. *Panicum adpersum*.  
 4070. *Paspalum plicatulum*.  
 4074. *Bouteloua heterostega*.  
 4089. *Arundinella confinis*.

4090. *Panicum acuminatum*.  
 4118. *Paspalum decumbens*.  
 4139. *Ichnanthus pallens*.  
 4142. *Panicum trichoides*.  
 4147. *Andropogon bicornis*.  
 4148. *Panicum laxum*.  
 4149. *Paspalum paniculatum*.  
 4209. *Arthrostylidium sarmentosum*.  
 4222. *Arthrostylidium multispicatum*.  
 4265. *Eriochrysis cayennensis*.  
 4267. *Andropogon leucostachyus*.  
 4271. *Isachne angustifolia*.  
 4283. *Cymbopogon citratus*.  
 4286. *Panicum laxum*.  
 9830. *Eragrostis hypnoides*.  
 9853. *Distichlis spicata*.  
 9872. *Paspalum paniculatum*.  
 9931. *Panicum geminatum*.  
 9984. *Leptochloa fascicularis*.  
 12798. *Cenchrus viridis*.  
 12857. *Aristida scabra*.

BRITTON, N. L., COWELL, J. F., AND  
 BROWN, S.

3836. *Panicum portoricense*.  
 3848. *Eragrostis ciliaris*.  
 3853. *Panicum portoricense*.  
 3854. *Eragrostis ciliaris*.  
 3858. *Syntherisma panicea*.  
 4357. *Spartina patens juncea*.  
 4358. *Aristida refracta*.  
 4361. *Aristida portoricensis*.  
 4476. *Paspalum notatum*.  
 4477. *Andropogon leucostachyus*.  
 4490. *Lasiacis divaricata*.  
 4527. *Axonopus compressus*.  
 4532. *Chaetochloa geniculata*.  
 4617. *Panicum utowanaeum*.  
 4636. *Paspalum glabrum*.  
 4639. *Paspalum glabrum*.  
 4648. *Bouteloua heterostega*.  
 4650. *Eragrostis ciliaris*.  
 4655. *Leptochloa filiformis*.  
 4662. *Nazia aliena*.  
 4684. *Sporobolus argutus*.  
 4686. *Paspalum glabrum*.  
 4689. *Pappophorum alopecuroideum*.  
 4690. *Paspalum glabrum*.  
 4708. *Uniola virgata*.  
 4713. *Eragrostis ciliaris*.  
 4717. *Paspalum glabrum*.  
 4753. *Sporobolus indicus*.  
 4754. *Panicum utowanaeum*.

4791. *Panicum reptans*.  
 4890. *Uniola virgata*.  
 4909. *Paspalum glabrum*.  
 4911. *Cenchrus echinatus*.  
 4918. *Bouteloua juncea*.  
 4955. *Lasiacis divaricata*.  
 4956. *Nazia aliena*.  
 4981. *Cenchrus echinatus*.  
 4986. *Cenchrus viridis*.  
 4989. *Chaetochloa geniculata*.  
 4991. *Panicum adpersum*.  
 5002. *Uniola virgata*.  
 5003. *Eragrostis ciliaris*.  
 5006. *Lasiacis divaricata*.  
 5012. *Panicum utowanaeum*.  
 5038. *Panicum maximum*.  
 5041. *Paspalum glabrum*.  
 5045. *Sporobolus argutus*.  
 5046. *Cenchrus carolinianus*.  
 5236. *Arthrostylidium sarmentosum*.  
 5380. *Pennisetum ciliare*.  
 5381. *Chloris paraguayensis*.  
 5382. *Bouteloua heterostega*.  
 5595. *Isachne angustifolia*.  
 5600. *Arthrostylidium sarmentosum*.

BRITTON, N. L., COWELL, J. F., AND  
 HESS, W. E.

1601. *Panicum utowanaeum*.  
 1602. *Sporobolus virginicus*.  
 1604. *Chaetochloa setosa*.  
 1656. *Paspalum caespitosum*.  
 1674. *Cenchrus myosuroides*.  
 1676. *Dactyloctenium aegyptium*.  
 1698. *Panicum utowanaeum*.  
 1734. *Panicum utowanaeum*.  
 1761. *Panicum adpersum*.  
 1777. *Pappophorum alopecuroides*.  
 1780. *Sporobolus argutus*.  
 1784. *Syntherisma digitata*.  
 1831. *Chloris paraguayensis*.  
 1839. *Paspalum caespitosum*.  
 1875. *Sporobolus argutus*.

BRITTON, N. L., COWELL, J. F., AND  
 SHAFER, J. A.

12979. *Lasiacis ruscifolia*.  
 13043. *Leptochloa filiformis*.

BRITTON, N. L., AND EARLE, F. S.

6566. *Panicum dichotomiflorum*.

BRITTON, N. L., EARLE, F. S., AND  
 GAGER, S.

6295. *Panicum reptans*.

BRITTON, N. L., AND FISHLOCK, W. C.

957. *Eragrostis ciliaris*.  
 986. *Paspalum glabrum*.  
 1041. *Paspalum glabrum*.  
 1075. *Eragrostis ciliaris*.  
 1097. *Paspalum plicatulum*.

BRITTON, N. L., AND GAGER, S.

7561. *Eragrostis prolifera*.

BRITTON, N. L., AND HESS, W. E.

2699. *Leptocoryphium lanatum*.  
 2813. *Andropogon leucostachyus*.  
 2833. *Paspalum conjugatum*.  
 2835. *Paspalum orbiculatum*.

BRITTON, N. L., AND HOLLICK, A.

1729. *Leptothrium rigidum*.  
 1746. *Aristida adscensionis*.  
 2194. *Achlaena piptostachya*.

BRITTON, N. L., AND MILLSPAUGH, C. F.

2130. *Lasiacis divaricata*.  
 2186. *Eragrostis prolifera*.  
 2211. *Cenchrus microcephalus*.  
 2236. *Eragrostis ciliaris*.  
 2736. *Panicum nitidum*.  
 2947. *Valota insularis*.  
 2997. *Arthrostylidium capillifolium*.  
 3089. *Paspalum caespitosum*.  
 3108. *Leptochloa fascicularis*.  
 5733. *Chloris polydactyla*.  
 6309. *Aristida adscensionis*.

BRITTON, N. L., AND ROSE, J. N.

1414. *Uniola virgata*.

BRITTON, N. L., AND SHAFER, J. A.

223. *Pharus glaber*.  
 257. *Paspalum glabrum*.  
 278. *Sporobolus berterianus*.  
 280. *Bouteloua americana*.

- 282. *Axonopus compressus*.
- 292. *Paspalum glabrum*.
- 305. *Andropogon bicornis*.
- 334. *Panicum adpersum*.
- 375. *Paspalum plicatulum*.
- 382. *Panicum diffusum*.
- 501. *Eragrostis amabilis*.
- 506. *Paspalum glabrum*.
- 606. *Chloris paraguayensis*.
- 608. *Andropogon multinervosus*.
- 611. *Panicum geminatum*.
- 631. *Chaetochloa setosa*.
- 633. *Bouteloua americana*.
- 665. *Antheophora hermaphrodita*.
- 694. *Paspalum glabrum*.
- 698. *Sporobolus muralis*.
- 700. *Eragrostis ciliaris*.
- 711. *Panicum adpersum*.
- 755. *Chloris radiata*.
- 761. *Eriochloa punctata*.
- 764. *Paspalum plicatulum*.
- 765. *Andropogon bicornis*.
- 791. *Panicum laxum*.
- 808. *Panicum laxum*.
- 835. *Olyra latifolia*.
- 880. *Paspalum glabrum*.
- 1520. *Chloris radiata*.
- 1523. *Eriochloa subglabra*.
- 1624. *Paspalum notatum*.
- 1633. *Ichnanthus pallens*.
- 1665. *Eragrostis hypnoides*.
- 1680. *Paspalum decumbens*.
- 1858. *Panicum geminatum*.
- 1862. *Sporobolus argutus*.
- 1873. *Sporobolus argutus*.
- 1874. *Leptochloa filiformis*.
- 1901. *Chaetochloa setosa*.
- 2018. *Ichnanthus axillaris*.
- 2042. *Arthrostylidium sarmentosum*.
- 2135. *Paspalum decumbens*.
- 2987. *Panicum reptans*.
- 3002. *Panicum reptans*.
- 3012. *Panicum barbinode*.
- 3088. *Panicum distantiflorum*.

BRITTON, N. L., STEVENS, F. L., AND  
HESS, W. E.

- 2395. *Paspalum glabrum*.
- 2396. *Eragrostis elliottii*.
- 2398. *Paspalum simpsoni*.
- 2402. *Eragrostis ciliaris*.
- 2419. *Panicum trichoides*.
- 2566. *Isachne angustifolia*.

- 2576. *Ichnanthus pallens*.
- 2623. *Lasiacis divaricata*.

BRITTON, N. L., AND WHEELER, W. M.

- 18. *Chaetochloa setosa*.
- 47. *Leptochloa virgata*.
- 48. *Valota insularis*.
- 97. *Bambos vulgaris*.
- 106. *Oplismenus setarius*.
- 122. *Cenchrus viridis*.
- 137. *Panicum fasciculatum*.
- 140. *Syntherisma digitata*.
- 141. *Chloris paraguayensis*.
- 145. *Echinochloa colonum*.
- 190. *Paspalum glabrum*.
- 207. *Cenchrus echinatus*.
- 233. *Chaetochloa setosa*.
- 261. *Eragrostis ciliaris*.

BRITTON, N. L., AND WILSON, P.

- 148. *Paspalum cilliferum*.
- 156a. *Eragrostis tephrosanthos*.
- 5743. *Arthrostylidium capillifolium*.
- 5758. *Sporobolus domingensis*.
- 6116. *Paspalum capillifolium*.
- 14016. *Oplismenus hirtellus*.
- 14282. *Paspalum pulchellum*.
- 14283. *Panicum albomarginatum*.
- 14291. *Andropogon cubensis*.
- 14292. *Sporobolus cubensis*.
- 14305. *Panicum arenicoloides*.
- 14316. *Achlaena piptostachya*.
- 14320. *Panicum acuminatum*.
- 14456. *Paspalum virgatum*.
- 14695. *Paspalum minus*.
- 14698. *Syntherisma sanguinalis*.
- 14699. *Panicum exiguiiflorum*.
- 14701. *Panicum caricoides*.
- 14705. *Panicum erectifolium*.
- 14707. *Paspalum plicatulum*.
- 14708. *Eragrostis elliottii*.
- 14712. *Capriola dactylon*.
- 14747. *Panicum lancearium*.
- 14803. *Panicum aquaticum*.
- 14804. *Andropogon nashianus*.
- 14812. *Andropogon brevifolius*.
- 14813. *Sporobolus indicus*.
- 14814. *Syntherisma digitata*.
- 14817. *Chaetochloa geniculata*.
- 14860. *Lasiacis rugelii*.
- 14890. *Paspalum caespitosum*.
- 15134. *Lasiacis sloanei*.
- 15155. *Bouteloua heterostega*.

15404. *Sporobolus argutus*.  
 15438. *Andropogon bicornis*.  
 15595. *Panicum laxum*.  
 15612. *Eragrostis glutinosa*.  
 15665. *Paspalum simpsoni*.  
 15674. *Panicum acuminatum*.  
 15679. *Sacciolepis villoides*.  
 15805. *Paspalum multicaule*.

BROADWAY, W. E.

7. *Pharus latifolia*.  
 10. *Syntherisma digitata*.  
 25. *Sporobolus indicus*.  
 43. *Eragrostis pilosa*.  
 62. *Paspalum saccharoides*.  
 94. *Panicum trichoides*.  
 123. *Chaetochloa palmifolia*.  
 130. *Syntherisma digitata*.  
 131. *Paspalum paniculatum*.  
 144. *Paspalum virgatum*.  
 148. *Panicum pilosum*.  
 177. *Ichnanthus nemorosus*.  
 184. *Antheophora hermaphrodita*.  
 192. *Paspalum saccharoides*.  
 217. *Bouteloua americana*.  
 227. *Lasiacis sloanei*.  
 249. *Leptochloa filiformis*.  
 250. *Leptochloa filiformis*.  
 253. *Andropogon fastigiatus*.  
 255. *Paspalum glabrum*.  
 513. *Andropogon bicornis*.  
 566. *Panicum laxum*.  
 617. *Sporobolus littoralis*.  
 665. *Paspalum glabrum*.  
 721. *Panicum reptans*.  
 724. *Eragrostis amabilis*.  
 843. *Paspalum saccharoides*.  
 847. *Axonopus compressus*.  
 909. *Paspalum virgatum*.  
 947. *Lasiacis sloanei*.  
 967. *Andropogon bicornis*.  
 978. *Chloris radiata*.  
 979. *Antheophora hermaphrodita*.  
 1103. *Ichnanthus pallens*.  
 1104. *Oplimenus hirtellus*.  
 1124. *Leptochloa virgata*.  
 1126. *Chaetochloa geniculata*.  
 1133. *Lasiacis divaricata*.  
 1385. *Lasiacis sloanei*.  
 1530. *Eriochloa punctata*.  
 1626. *Luziola spruceana*.  
 1670. *Bouteloua americana*.

1682. *Eragrostis pilosa*.  
 1729. *Paspalum nutans*.  
 1744. *Paspalum conjugatum pubescens*.  
 1782. *Valota laxa*.  
 1783. *Andropogon condensatus*.  
 1793. *Paspalum distichum*.  
 1793½. *Paspalum notatum*.  
 1870. *Panicum laxum*.  
 1922. *Syntherisma longiflora*.  
 2126. *Paspalum multicaule*.  
 2141. *Hymenachne amplexicaulis*.  
 2142. *Sacciolepis myuros*.  
 2246. *Bambos vulgaris*.  
 2279. *Chloris radiata*.  
 2370. *Panicum stoloniferum*.  
 2371. *Panicum frondescens*.  
 2372. *Panicum parvifolium*.  
 2373. *Andropogon virgatus*.  
 2374. *Eriochrysis cayennensis*.  
 2375. *Raddia biformis*.  
 2377. *Panicum cyanescens*.  
 2390. *Panicum frondescens*.  
 2504. *Lasiacis ruscifolia*.  
 2563. *Panicum zizanioides*.  
 2564. *Lasiacis ruscifolia*.  
 2603. *Paspalum pilosum*.  
 2609. *Cenchrus viridis*.  
 2618. *Paspalum densum*.  
 2627. *Lasiacis ruscifolia*.  
 2629. *Panicum hirsutum*.  
 2811. *Paspalum nutans*.  
 2837. *Panicum polygonatum*.  
 2910. *Leptochloa filiformis*.  
 2920. *Andropogon bicornis*.  
 2982. *Andropogon selloanus*.  
 2996. *Paspalum paniculatum*.  
 3004. *Raddia urbaniana*.  
 3043. *Holcus sorghum*.  
 3045. *Paspalum vaginatum*.  
 3066. *Paspalum millegrana*.  
 3068. *Panicum altum*.  
 3100. *Luziola spruceana*.  
 3148. *Paspalum plicatulum*.  
 3258. *Andropogon selloanus*.  
 3260. *Andropogon bicornis*.  
 3269. *Oryza sativa*.  
 3412. *Bambos vulgaris*.  
 3551. *Lasiacis ligulata*.  
 3712. *Panicum laxum*.  
 3820. *Ichnanthus pallens*.  
 3977. *Panicum fasciculatum*.  
 3978. *Sporobolus littoralis*.



3979. *Paspalum saccharoides*.  
 3996. *Oplismenus hirtellus*.  
 4018. *Andropogon bicornis*.  
 4038. *Lasiacis ligulata*.  
 4039. *Ichnanthus pallens*.  
 4044. *Andropogon selleanus*.  
 4058. *Paspalum virgatum*.  
 4059. *Eragrostis pilosa*.  
 4063. *Panicum pilosum*.  
 4080. *Ichnanthus pallens*.  
 4081. *Panicum maximum*.  
 4175. *Cymbopogon nardus*.  
 4335. *Chaetochloa barbata*.  
 4358. *Stenotaphrum secundatum*.  
 4359. *Sporobolus littoralis*.  
 4360. *Raddia urbaniana*.  
 4361. *Paspalum conjugatum*.  
 4362. *Olyra latifolia*.  
 4385. *Bouteloua americana*.  
 4388. *Sporobolus littoralis*.  
 4390. *Paspalum virgatum*.  
 4472. *Ichnanthus nemoralis*.  
 4475. *Axonopus compressus*.  
 4476. *Panicum polygonatum*.  
 4513. *Paspalum distichum*.  
 4535. *Syntherisma digitata*.  
 4556. *Panicum zizanioides*.  
 4564. *Oplismenus hirtellus*.  
 4585. *Eragrostis ciliaris*.  
 4595. *Leptochloa filiformis*.  
 4615. *Ichnanthus pallens*.  
 4616. *Paspalum plicatulum*.  
 4617. *Eriochloa punctata*.  
 4620. *Arundinella confinis*.  
 4629. *Sporobolus indicus*.  
 4630. *Panicum fasciculatum*.  
 4648. *Echinochloa colonum*.  
 4649. *Chloris radiata*.  
 4655. *Paspalum vaginatum*.  
 4666. *Lasiacis sloanei*.  
 4668. *Panicum laxum*.  
 4682. *Anatherum zizanioides*.  
 4683. *Pennisetum setosum*.  
 4685. *Paspalum paniculatum*.  
 4686. *Chaetochloa geniculata*.  
 4696. *Paspalum millegrana*.  
 4726. *Cenchrus echinatus*.  
 4727. *Andropogon pertusus panormitanus*.  
 4737. *Chaetochloa barbata*.  
 4739. *Leptochloa scabra*.  
 4787. *Imperata brasiliensis*.  
 4790. *Andropogon condensatus*.  
 4806. *Leptochloa virgata*.  
 4817. *Oplismenus hirtellus*.  
 4840. *Panicum barbinode*.  
 4841. *Lasiacis patentiflora*.  
 4851. *Valota laxa*.  
 4852. *Sporobolus indicus*.  
 4891. *Panicum trigonum*.  
 4892. *Leptochloa filiformis*.  
 4893. *Valota insularis*.  
 4894. *Archrostylidium excelsum*.  
 4895. *Panicum hirsutum*.  
 4896. *Echinochloa spectabilis*.  
 4897. *Phragmites phragmites*.  
 4898. *Chaetochloa vulpiseta*.  
 4899. *Valota insularis*.  
 4911. *Ichnanthus pallens*.  
 4912. *Ichnanthus tenuis*.  
 4913. *Ichnanthus tenuis*.  
 4914. *Paspalum nutans*.  
 4915. *Stenotaphrum secundatum*.  
 4916. *Cenchrus viridis*.  
 4917. *Hymenachne amplexicaulis*.  
 4919. *Sporobolus argutus*.  
 4920. *Panicum geminatum*.  
 4921. *Paspalum millegrana*.  
 4922. *Archrostylidium prestei*.  
 4923. *Lasiacis ligulata*.  
 4924. *Lasiacis sorghoidea*.  
 4925. *Axonopus compressus*.  
 4926. *Panicum trichoides*.  
 4927. *Orthoclada laxa*.  
 4928. *Oplismenus hirtellus*.  
 4929. *Streptochaeta spicata*.  
 4930. *Pharus latifolius*.  
 4931. *Ichnanthus nemorosus*.  
 4932. *Streptogyne crinita*.  
 4933. *Olyra latifolia*.  
 4935. *Stenotaphrum secundatum*.  
 4936. *Echinochloa colonum*.  
 4937. *Leptochloa scabra*.  
 4938. *Valota insularis*.  
 4939. *Paspalum virgatum*.  
 4940. *Eragrostis glomerata*.  
 4941. *Eragrostis glomerata*.  
 4942. *Leptochloa virgata*.  
 4943. *Manisuris exaltatus*.  
 4944. *Valota insularis*.  
 4945. *Andropogon condensatus*.  
 4947. *Paspalum virgatum*.  
 4949. *Andropogon condensatus*.  
 4950. *Chloris radiata*.  
 4951. *Syntherisma sanguinalis*.  
 4952. *Lasiacis ligulata*.

4953. *Eragrostis tephrosanthos*.  
 4954. *Orthocladia laxa*.  
 4955. *Pharus parvifolius*.  
 4956. *Panicum laxum*.  
 4957. *Panicum grande*.  
 4958. *Oplismenus hirtellus*.  
 4959. *Lasiacis ligulata*.  
 4960. *Ichnanthus pallens*.  
 4961. *Syntherisma longiflora*.  
 4962. *Tricholaena rosea*.  
 4963. *Imperata contracta*.  
 4964. *Pennisetum setosum*.  
 4965. *Manisuris exaltata*.  
 4966. *Antheophora hermaphrodita*.  
 4967. *Syntherisma digitata*.  
 4968. *Andropogon bicornis*.  
 4969. *Paspalum pilosum*.  
 4970. *Paspalum plicatulum*.  
 4971. *Sporobolus indicus*.  
 4972. *Syntherisma digitata*.  
 4973. *Panicum trichanthum*.  
 4974. *Eragrostis ciliaris*.  
 4975. *Syntherisma digitata*.  
 4976. *Lasiacis sorghoidea*.  
 4977. *Ichnanthus pallens*.  
 4978. *Hymenachne auriculata*.  
 4979. *Eragrostis glomerata*.  
 4980. *Panicum hirsutum*.  
 4981. *Andropogon selleanus*.  
 4982. *Tripsacum dactyloides*.  
 4983. *Paspalum convexum*.  
 4984. *Panicum barbinode*.  
 4985. *Panicum laxum*.  
 4986. *Panicum pilosum*.  
 4987. *Paspalum virgatum*.  
 4988. *Pharus parvifolius*.  
 7015. *Cenchrus echinatus*.

## BROOKS, A. J.

20. *Chloris paraguayensis*.  
 23. *Echinochloa colonum*.  
 24. *Capriola dactylon*.  
 27. *Eleusine indica*.  
 28. *Antheophora hermaphrodita*.  
 29. *Paspalum virgatum*.  
 30. *Andropogon condensatus*.  
 31. *Leptochloa virgata*.  
 32. *Syntherisma digitata*.  
 33. *Dactyloctenium aegyptium*.  
 34. *Paspalum conjugatum*.  
 35. *Dactyloctenium aegyptium*.  
 38. *Eleusine indica*.

## BROWN, S.

473. *Koeleria phleoides*.  
 474. *Poa annua*.  
 478. *Poa annua*.  
 521. *Scleropoa rigida*.  
 522. *Sporobolus berterioanus*.  
 523. *Chloris petraea*.  
 600. *Koeleria phleoides*.  
 601. *Scleropoa rigida*.  
 605. *Koeleria phleoides*.  
 614. *Scleropoa rigida*.  
 617. *Koeleria phleoides*.  
 622. *Arundo donax*.

## BROWN, S., AND BRITTON, N. L.

5. *Chaetochloa geniculata*.  
 13. *Oplismenus setarius*.  
 20. *Panicum maximum*.  
 21. *Panicum capillare*.  
 56. *Paspalum propinquum*.  
 57. *Syntherisma longiflora*.  
 58. *Sporobolus berterioanus*.  
 60. *Chloris petraea*.  
 63. *Stenotaphrum secundatum*.  
 65. *Syntherisma digitata*.  
 100. *Paspalum vaginatum*.  
 116. *Chaetochloa verticillata*.  
 126. *Cenchrus echinatus*.  
 128. *Cenchrus tribuloides*.  
 130. *Holcus halepensis*.  
 213. *Arundo donax*.  
 225. *Andropogon virginicus*.  
 302. *Chaetochloa verticillata*.  
 313. *Spartina patens juncea*.  
 379. *Eleusine indica*.  
 826. *Paspalum distichum*.

## BUCH, W.

929. *Arthrostylidium haitiense*.  
 956. *Panicum glutinosum*.  
 961. *Andropogon urbanianus*.  
 1010. *Bouteloua juncea*.  
 1071. *Andropogon gracilis*.  
 1074. *Andropogon urbanianus*.  
 1077. *Andropogon urbanianus*.  
 1091. *Paspalum heterotrichon*.  
 1093. *Arundo donax*.

## CALDWELL, O., AND BAKER, C. F.

7011. *Olyra strepholoides*.  
 7136. *Panicum laxum*.  
 7139. *Panicum fusiforme*.

## CHASE, A.

6150. *Paspalum secans*.  
 6151. *Paspalum plicatulum*.  
 6152. *Paspalum conjugatum*.  
 6153. *Paspalum millegrana*.  
 6154. *Paspalum paniculatum*.  
 6155. *Panicum laxum*.  
 6156. *Sporobolus indicus*.  
 6157. *Lasiacis divaricata*.  
 6160. *Axonopus compressus*.  
 6161. *Andropogon semiberbis*.  
 6162. *Andropogon bicornis*.  
 6163. *Andropogon leucostachyus*.  
 6164. *Paspalum millegrana*.  
 6165. *Andropogon glomeratus*.  
 6166. *Chaetochloa geniculata*.  
 6167. *Panicum trichoides*.  
 6168. *Syntherisma digitata*.  
 6169. *Eleusine indica*.  
 6170. *Paspalum decumbens*.  
 6171. *Andropogon brevifolius*.  
 6172. *Paspalum melanospermum*.  
 6173. *Paspalum virgatum*.  
 6174. *Paspalum secans*.  
 6175. *Olyra latifolia*.  
 6176. *Paspalum decumbens*.  
 6177. *Olyra latifolia*.  
 6178. *Paspalum leoninum*.  
 6179. *Chloris radiata*.  
 6180. *Syntherisma sanguinalis*.  
 6181. *Eragrostis tephrosanthos*.  
 6182. *Paspalum glabrum*.  
 6183. *Chloris petraea*.  
 6184. *Sporobolus indicus*.  
 6186. *Paspalum decumbens*.  
 6187. *Paspalum millegrana*.  
 6189. *Oplismenus hirtellus*.  
 6190. *Arthrostylidium sarmentosum*.  
 6191. *Panicum trichoides*.  
 6192. *Lasiacis divaricata*.  
 6193. *Paspalum secans*.  
 6194. *Ryttilix granularis*.  
 6195. *Chaetochloa geniculata*.  
 6196. *Ichnanthus pallens*.  
 6197. *Panicum fasciculatum*.  
 6198. *Panicum schiffneri*.  
 6199. *Panicum glutinosum*.  
 6200. *Olyra latifolia*.  
 6201. *Arthrostylidium multispicatum*.  
 6202. *Andropogon hirtiflorus*.  
 6203. *Andropogon glomeratus*.  
 6206. *Andropogon bicornis*.  
 6216. *Andropogon leucostachyus*.  
 6217. *Chloris radiata*.  
 6218. *Lasiacis sorglioidea*.  
 6220. *Paspalum leoninum*.  
 6221. *Syntherisma argillacea*.  
 6222. *Isachne angustifolia*.  
 6223. *Arthrostylidium sarmentosum*.  
 6224. *Lasiacis harrisii*.  
 6225. *Lasiacis divaricata*.  
 6226. *Andropogon saccharoides*.  
 6227. *Bouteloua heterostega*.  
 6228. *Lasiacis harrisii*.  
 6229. *Oplismenus hirtellus*.  
 6230. *Sporobolus berterianus*.  
 6231. *Chaetochloa geniculata*.  
 6232. *Paspalum portoricense*.  
 6233. *Paspalum distichum*.  
 6234. *Paspalum melanospermum*.  
 6235. *Paspalum decumbens*.  
 6236. *Paspalum notatum*.  
 6237. *Paspalum millegrana*.  
 6238. *Paspalum secans*.  
 6239. *Paspalum paniculatum*.  
 6240. *Valota insularis*.  
 6241. *Dactyloctenium aegyptium*.  
 6242. *Cenchrus echinatus*.  
 6243. *Eragrostis tephrosanthos*.  
 6244. *Bambos vulgaris*.  
 6246. *Paspalum leoninum*.  
 6247. *Panicum schiffneri*.  
 6248. *Arthrostylidium capillifolium*.  
 6249. *Panicum acuminatum*.  
 6251. *Eriochloa punctata*.  
 6252. *Echinochloa colonum*.  
 6253. *Syntherisma sanguinalis*.  
 6254. *Eriochloa subglabra*.  
 6255. *Syntherisma longiflora*.  
 6256. *Panicum maximum*.  
 6257. *Paspalum virgatum*.  
 6257½. *Paspalum millegrana*.  
 6258. *Hymenachne amplexicaulis*.  
 6259. *Paspalum leoninum*.  
 6260. *Coix lachryma-jobi*.  
 6261. *Paspalum secans*.  
 6262. *Paspalum portoricense*.  
 6263. *Panicum fasciculatum*.  
 6264. *Paspalum decumbens*.  
 6265. *Lithachne pauciflora*.  
 6266. *Pharus glaber*.  
 6268. *Bouteloua heterostega*.  
 6269. *Aristida portoricensis*.  
 6270. *Andropogon saccharoides*.  
 6271. *Syntherisma argillacea*.

6272. *Leptocoryphium lanatum*.  
 6273. *Panicum aciculare*.  
 6274. *Paspalum leoninum*.  
 6275. *Paspalum leoninum*.  
 6276. *Panicum polycaulon*.  
 6277. *Syntherisma argillacea*.  
 6278. *Stenotaphrum secundatum*.  
 6279. *Paspalum glabrum*.  
 6280. *Dactyloctenium aegyptium*.  
 6281. *Cenchrus echinatus*.  
 6282. *Paspalum propinquum*.  
 6283. *Sporobolus virginicus*.  
 6284. *Valota insularis*.  
 6285. *Eragrostis ciliaris*.  
 6286. *Panicum adpersum*.  
 6287. *Paspalum notatum*.  
 6288. *Panicum geminatum*.  
 6289. *Leptochloa scabra*.  
 6290. *Echinochloa sabulicola*.  
 6291. *Homalocenchrus hexandrus*.  
 6292. *Andropogon bicornis*.  
 6293. *Chloris paraguayensis*.  
 6294. *Capriola dactylon*.  
 6295. *Eragrostis tephrosanthos*.  
 6296. *Paspalum fimbriatum*.  
 6297. *Cymbopogon nardus*.  
 6298. *Aristida portoricensis*.  
 6299. *Paspalum leoninum*.  
 6300. *Paspalum glabrum*.  
 6301. *Bouteloua heterostega*.  
 6302. *Panicum adpersum*.  
 6303. *Paspalum millegrana*.  
 6304. *Chaetochloa geniculata*.  
 6305. *Panicum reptans*.  
 6306. *Paspalum glabrum*.  
 6307. *Paspalum vaginatum*.  
 6308. *Panicum diffusum*.  
 6309. *Paspalum secans*.  
 6310. *Lasiacis divaricata*.  
 6311. *Lithachne pauciflora*.  
 6312. *Paspalum leoninum*.  
 6313. *Paspalum glabrum*.  
 6314. *Paspalum notatum*.  
 6315. *Paspalum leoninum*.  
 6316. *Paspalum millegrana*.  
 6317. *Hymenachne amplexicaulis*.  
 6318. *Panicum geminatum*.  
 6319. *Echinochloa spectabilis*.  
 6321. *Ichnanthus pallens*.  
 6322. *Paspalum portoricense*.  
 6323. *Paspalum rupestre*.  
 6324. *Holcus sorghum sudanensis*.  
 6326. *Panicum reptans*.  
 6327. *Bouteloua heterostega*.  
 6328. *Valota insularis*.  
 6329. *Paspalum fimbriatum*.  
 6330. *Eragrostis ciliaris*.  
 6331. *Syntherisma digitata*.  
 6332. *Panicum maximum*.  
 6333. *Panicum adpersum*.  
 6334. *Olyra latifolia*.  
 6335. *Lasiacis divaricata*.  
 6336. *Andropogon bicornis*.  
 6337. *Stenotaphrum secundatum*.  
 6338. *Paspalum portoricense*.  
 6339. *Paspalum plicatum*.  
 6340. *Paspalum decumbens*.  
 6341. *Panicum laxum*.  
 6342. *Chaetochloa geniculata*.  
 6343. *Paspalum vaginatum*.  
 6344. *Paspalum notatum*.  
 6345. *Stenotaphrum secundatum*.  
 6345½. *Cenchrus carolinianus*.  
 6346. *Paspalum glabrum*.  
 6347. *Chloris petraea*.  
 6348. *Sporobolus virginicus*.  
 6349. *Spartina patens juncea*.  
 6350. *Eriochloa subglabra*.  
 6351. *Panicum condensum*.  
 6352. *Echinochloa sabulicola*.  
 6353. *Sacciolepis striata*.  
 6354. *Panicum laxum*.  
 6355. *Andropogon glomeratus*.  
 6356. *Paspalum millegrana*.  
 6357. *Panicum portoricense*.  
 6358. *Panicum parvifolium*.  
 6359. *Paspalum millegrana*.  
 6361. *Paspalum decumbens*.  
 6362. *Ichnanthus pallens*.  
 6363. *Panicum laxum*.  
 6364. *Syntherisma sanguinalis*.  
 6365. *Lasiacis divaricata*.  
 6366. *Andropogon leucostachyus*.  
 6367. *Paspalum glabrum*.  
 6368. *Paspalum minus*.  
 6369. *Paspalum glabrum*.  
 6370. *Sorghastrum parviflorum*.  
 6371. *Chaetochloa vulpisetia*.  
 6372. *Paspalum secans*.  
 6373. *Paspalum millegrana*.  
 6374. *Chaetochloa geniculata*.  
 6375. *Valota insularis*.  
 6376. *Panicum fasciculatum*.  
 6377. *Chaetochloa geniculata*.  
 6378. *Panicum acuminatum*.  
 6379. *Lasiacis divaricata*.

6380. *Eriochloa punctata*.  
 6381. *Echinochloa colonum*.  
 6382. *Paspalum secans*.  
 6383. *Andropogon leucostachyus*.  
 6384. *Andropogon brevifolius*.  
 6385. *Andropogon bicornis*.  
 6386. *Cenchrus echinatus*.  
 6387. *Paspalum secans*.  
 6388. *Chloris radiata*.  
 6389. *Paspalum conjugatum*.  
 6390. *Paspalum paniculatum*.  
 6391. *Eragrostis tephrosanthos*.  
 6392. *Leptochloa scabra*.  
 6393. *Eragrostis ciliaris*.  
 6394. *Eragrostis pilosa*.  
 6395. *Panicum reptans*.  
 6396. *Echinochloa sabulicola*.  
 6397. *Homalocenchrus hexandrus*.  
 6398. *Eragrostis hypnoides*.  
 6399. *Paspalum decumbens*.  
 6401. *Paspalum notatum*.  
 6402. *Paspalum glabrum*.  
 6403. *Pharus glaber*.  
 6404. *Paspalum conjugatum*.  
 6405. *Ichnanthus pallens*.  
 6406. *Anatherum zizanioides*.  
 6407. *Panicum elephantipes*.  
 6408. *Paspalum glabrum*.  
 6409. *Paspalum secans*.  
 6410. *Lithachne pauciflora*.  
 6411. *Ichnanthus pallens*.  
 6412. *Lasiacis sloanei*.  
 6413. *Oplismenus setarius*.  
 6414. *Hymenachne amplexicaulis*.  
 6415. *Panicum elephantipes*.  
 6416. *Olyra latifolia*.  
 6417. *Panicum trichoides*.  
 6418. *Ichnanthus pallens*.  
 6419. *Lasiacis sorghoidea*.  
 6420. *Lasiacis divaricata*.  
 6421. *Sorghastrum parviflorum*.  
 6422. *Eragrostis tephrosanthos*.  
 6423. *Paspalum glabrum*.  
 6424. *Paspalum notatum*.  
 6425. *Dactyloctenium aegyptium*.  
 6426. *Olyra latifolia*.  
 6427. *Paspalum caespitosum*.  
 6428. *Paspalum portoricense*.  
 6429. *Stenotaphrum secundatum*.  
 6430. *Paspalum plicatulum*.  
 6431. *Lasiacis divaricata*.  
 6432. *Eragrostis ciliaris*.  
 6433. *Paspalum propinquum*.  
 6434. *Panicum portoricense*.  
 6435. *Syntherisma panicea*.  
 6436. *Antheophora hermaphrodita*.  
 6437. *Paspalum glabrum*.  
 6438. *Imperata contracta*.  
 6440. *Panicum laxum*.  
 6441. *Paspalum millegrana*.  
 6442. *Gynerium sagittatum*.  
 6443. *Lasiacis divaricata*.  
 6444. *Paspalum secans*.  
 6445. *Eriochloa subglabra*.  
 6446. *Paspalum glabrum*.  
 6449. *Pharus glaber*.  
 6450. *Ichnanthus pallens*.  
 6453. *Eriochloa subglabra*.  
 6454. *Lasiacis ligulata*.  
 6456. *Lithachne pauciflora*.  
 6457. *Lasiacis sorghoidea*.  
 6458. *Eriochloa subglabra*.  
 6459. *Paspalum paniculatum*.  
 6460. *Syntherisma sanguinalis*.  
 6462. *Lasiacis divaricata*.  
 6463. *Ryttilix granularis*.  
 6464. *Gynerium sagittatum*.  
 6465. *Paspalum secans*.  
 6466. *Paspalum plicatulum*.  
 6467. *Eriochloa punctata*.  
 6468. *Arthrostylidium sarmentosum*.  
 6469. *Panicum glutinosum*.  
 6470. *Panicum multispicatum*.  
 6471. *Panicum aquaticum*.  
 6472. *Ichnanthus axillaris*.  
 6473. *Paspalum decumbens*.  
 6474. *Panicum schiffneri*.  
 6475. *Panicum acuminatum*.  
 6476. *Oplismenus hirtellus*.  
 6477. *Eriochloa punctata*.  
 6478. *Paspalum paniculatum*.  
 6479. *Chaetochloa geniculata*.  
 6480. *Andropogon glomeratus*.  
 6481. *Syntherisma sanguinalis*.  
 6482. *Eragrostis tephrosanthos*.  
 6483. *Paspalum distichum*.  
 6484. *Bouteloua heterostega*.  
 6485. *Eragrostis amabilis*.  
 6485½. *Bouteloua heterostega*.  
 6486. *Leptochloa virgata*.  
 6487. *Panicum trichanthum*.  
 6488. *Chaetochloa setosa*.  
 6489. *Paspalum caespitosum*.  
 6490. *Homalocenchrus monandrus*.  
 6491. *Cenchrus echinatus*.  
 6492. *Leptochloa filiformis*.

6493. *Leptochloa scabra*.  
 6494. *Paspalum distichum*.  
 6495. *Chloris ciliata*.  
 6496. *Sporobolus argutus*.  
 6497. *Sporobolus virginicus*.  
 6498. *Arundo donax*.  
 6499. *Paspalum glabrum*.  
 6500. *Sporobolus argutus*.  
 6501. *Eragrostis ciliaris*.  
 6502. *Chaetochloa rariflora*.  
 6503. *Eragrostis ciliaris*.  
 6504. *Bouteloua heterostega*.  
 6505. *Chaetochloa setosa*.  
 6506. *Aristida adscensionis*.  
 6507. *Aristida cognata*.  
 6508. *Aristida refracta*.  
 6509. *Antheophora hermaphrodita*.  
 6510. *Aristida adscensionis*.  
 6510½. *Syntherisma sanguinalis*.  
 6511. *Panicum geminatum*.  
 6512. *Chloris petraea*.  
 6513. *Chloris paraguayensis*.  
 6514. *Panicum adspersum*.  
 6515. *Panicum reptans*.  
 6516. *Leptochloa filiformis*.  
 6517. *Cenchrus viridis*.  
 6518. *Chaetochloa setosa*.  
 6519. *Chaetochloa setosa*.  
 6521. *Lasiacis divaricata*.  
 6522. *Cenchrus echinatus*.  
 6523. *Panicum fasciculatum*.  
 6524. *Homalocenchrus monandrus*.  
 6525. *Valota insularis*.  
 6526. *Uniola virgata*.  
 6528. *Panicum parbinode*.  
 6529. *Chloris paraguayensis*.  
 6530. *Echinochloa colonum*.  
 6531. *Panicum geminatum*.  
 6532. *Lasiacis divaricata*.  
 6533. *Panicum utowanaeum*.  
 6534. *Nazia aliena*.  
 6535. *Panicum utowanaeum*.  
 6536. *Chaetochloa setosa*.  
 6537. *Paspalum fimbriatum*.  
 6539. *Bouteloua americana*.  
 6541. *Chaetochloa setosa*.  
 6542. *Panicum fasciculatum*.  
 6543. *Lasiacis divaricata*.  
 6544. *Syntherisma digitata*.  
 6545. *Axonopus compressus*.  
 6546. *Paspalum plicatulum*.  
 6547. *Panicum ghiesbreghtii*.  
 6548. *Syntherisma sanguinalis*.  
 6549. *Panicum laxum*.  
 6550. *Paspalum fimbriatum*.  
 6551. *Leptochloa filiformis*.  
 6552. *Panicum geminatum*.  
 6553. *Paspalum paniculatum*.  
 6554. *Eriochloa subglabra*.  
 6555. *Andropogon glomeratus*.  
 6556. *Oplismenus setarius*.  
 6557. *Muhlenbergia capillaris*.  
 6558. *Andropogon gracilis*.  
 6559. *Paspalum secans*.  
 6560. *Lasiacis divaricata*.  
 6561. *Cenchrus carolinianus*.  
 6562. *Spartina patens juncea*.  
 6563. *Cenchrus echinatus*.  
 6564. *Sporobolus indicus*.  
 6565. *Paspalum millegrana*.  
 6566. *Cenchrus echinatus*.  
 6567. *Panicum diffusum*.  
 6568. *Syntherisma digitata*.  
 6569. *Lithachne pauciflora*.  
 6570. *Olyra latifolia*.  
 6571. *Ichnanthus pallens*.  
 6572. *Paspalum propinquum*.  
 6573. *Paspalum glabrum*.  
 6574. *Paspalum caespitosum*.  
 6575. *Paspalum glabrum*.  
 6576. *Syntherisma digitata*.  
 6578. *Lasiacis harristii*.  
 6579. *Paspalum simpsoni*.  
 6580. *Paspalum simpsoni*.  
 6581. *Paspalum secans*.  
 6582. *Andropogon brevifolius*.  
 6583. *Echinochloa sabulicola*.  
 6584. *Paspalum glabrum*.  
 6585. *Paspalum notatum*.  
 6586. *Andropogon glomeratus*.  
 6587. *Lasiacis divaricata*.  
 6588. *Paspalum poiretii*.  
 6589. *Andropogon gracilis*.  
 6590. *Chaetochloa geniculata*.  
 6591. *Paspalum glabrum*.  
 6592. *Paspalum plicatulum*.  
 6593. *Andropogon fastigiatus*.  
 6594. *Arundinella confinis*.  
 6595. *Axonopus compressus*.  
 6596. *Echinochloa sabulicola*.  
 6597. *Paspalum poiretii*.  
 6598. *Paspalum poiretii*.  
 6599. *Paspalum virgatum*.  
 6600. *Leptochloa virgata*.  
 6601. *Paspalum glabrum*.  
 6602. *Stenotaphrum secundatum*.

6603. *Spartina patens juncea*.  
 6604. *Cenchrus carolinianus*.  
 6605. *Paspalum simpsoni*.  
 6605½. *Paspalum glabrum*.  
 6606. *Lasiacis divaricata*.  
 6607. *Paspalum portoricense*.  
 6608. *Paspalum portoricense*.  
 6609. *Paspalum glabrum*.  
 6610. *Lasiacis divaricata*.  
 6611. *Gymnopogon foliosus*.  
 6613. *Paspalum propinquum*.  
 6614. *Aristida spiciformis*.  
 6615. *Panicum parvifolium*.  
 6616. *Panicum stevensianum*.  
 6617. *Panicum tenerum*.  
 6618. *Paspalum glabrum*.  
 6619. *Syntherisma digitata*.  
 6620. *Andropogon virgatus*.  
 6621. *Panicum polycaulon*.  
 6622. *Andropogon fastigiatus*.  
 6623. *Andropogon semiberbis*.  
 6624. *Panicum aciculare*.  
 6625. *Paspalum glabrum*.  
 6626. *Paspalum millegrana*.  
 6627. *Pharus glaber*.  
 6628. *Ichnanthus pallens*.  
 6629. *Ichnanthus pallens*.  
 6630. *Panicum parvifolium*.  
 6631. *Panicum portoricense*.  
 6632. *Andropogon brevifolius*.  
 6633. *Andropogon virgatus*.  
 6634. *Eragrostis elliottii*.  
 6634½. *Paspalum propinquum*.  
 6635. *Paspalum glabrum*.  
 6636. *Andropogon leucostachyus*.  
 6637. *Paspalum millegrana*.  
 6638. *Sorghastrum parviflorum*.  
 6639. *Paspalum notatum*.  
 6640. *Ichnanthus pallens*.  
 6641. *Paspalum secans*.  
 6642. *Paspalum virgatum*.  
 6643. *Sporobolus berterianus*.  
 6644. *Paspalum plicatulum*.  
 6645. *Olyra latifolia*.  
 6646. *Paspalum millegrana*.  
 6647. *Panicum acuminatum*.  
 6648. *Paspalum decumbens*.  
 6649. *Paspalum virgatum*.  
 6650. *Paspalum millegrana*.  
 6651. *Andropogon brevifolius*.  
 6652. *Paspalum plicatulum*.  
 6653. *Stenotaphrum secundatum*.  
 6654. *Cenchrus echinatus*.  
 6655. *Paspalum millegrana*.  
 6656. *Eriochloa subglabra*.  
 6657. *Panicum barbinode*.  
 6658. *Paspalum glabrum*.  
 6659. *Sporobolus indicus*.  
 6660. *Andropogon bicornis*.  
 6661. *Paspalum propinquum*.  
 6662. *Bouteloua americana*.  
 6663. *Lasiacis divaricata*.  
 6664. *Panicum reptans*.  
 6665. *Paspalum fimbriatum*.  
 6666. *Bouteloua americana*.  
 6667. *Cenchrus viridis*.  
 6668. *Cenchrus echinatus*.  
 6669. *Panicum maximum*.  
 6670. *Syntherisma sanguinalis*.  
 6671. *Axonopus compressus*.  
 6672. *Syntherisma digitata*.  
 6673. *Dactyloctenium aegyptium*.  
 6674. *Eleusine indica*.  
 6675. *Eragrostis ciliaris*.  
 6676. *Sporobolus littoralis*.  
 6677. *Stenotaphrum secundatum*.  
 6678. *Paspalum glabrum*.  
 6679. *Panicum barbinode*.  
 6680. *Sporobolus berterianus*.  
 6682. *Oplismenus setarius*.  
 6683. *Lasiacis divaricata*.  
 6684. *Valota insularis*.  
 6685. *Leptochloa virgata*.  
 6686. *Panicum adpersum*.  
 6687. *Paspalum millegrana*.  
 6688. *Syntherisma sanguinalis*.  
 6689. *Echinochloa colonum*.  
 6690. *Paspalum distichum*.  
 6691. *Chloris paraguayensis*.  
 6693. *Panicum fasciculatum*.  
 6694. *Paspalum vaginatum*.  
 6695. *Sporobolus virginicus*.  
 6696. *Cenchrus carolinianus*.  
 6697. *Paspalum glabrum*.  
 6698. *Paspalum secans*.  
 6699. *Spartina patens juncea*.  
 6700. *Panicum reptans*.  
 6701. *Leptochloa virgata*.  
 6702. *Chloris petraea*.  
 6703. *Paspalum virgatum*.  
 6704. *Paspalum millegrana*.  
 6705. *Paspalum virgatum*.  
 6706. *Paspalum virgatum*.  
 6707. *Paspalum secans*.  
 6708. *Andropogon bicornis*.  
 6709. *Chaetochloa geniculata*.

6710. *Andropogon brevifolius*.  
 6711. *Eragrostis hypnoides*.  
 6712. *Eriochloa punctata*.  
 6713. *Panicum laxum*.  
 6714. *Eriochloa subglabra*.  
 6715. *Leptochloa scabra*.  
 6716. *Paspalum secans*.  
 6717. *Ichnanthus pallens*.  
 6718. *Paspalum decumbens*.  
 6719. *Panicum acuminatum*.  
 6720. *Chaetochloa geniculata*.  
 6722. *Paspalum conjugatum*.  
 6723. *Paspalum secans*.  
 6724. *Paspalum melanospermum*.  
 6725. *Paspalum millegrana*.  
 6726. *Lasiacis divaricata*.  
 6727. *Paspalum paniculatum*.  
 6728. *Lasiacis sorghoidea*.  
 6729. *Paspalum notatum*.  
 6730. *Arthrostylidium sarmentosum*.  
 6731. *Arthrostylidium sarmentosum*.  
 6732. *Olyra latifolia*.  
 6733. *Andropogon leucostachyus*.  
 6734. *Lasiacis ligulata*.  
 6735. *Ichnanthus axillaris*.  
 6736. *Ichnanthus pallens*.  
 6737. *Oryza sativa*.  
 6738. *Arthrostylidium sarmentosum*.  
 6739. *Paspalum orbiculatum*.  
 6740. *Paspalum virgatum*.  
 6741. *Paspalum portoricense*.  
 6742. *Lasiacis harrisii*.  
 6743. *Oplismenus hirtellus*.  
 6744. *Panicum ghiesbreghtii*.  
 6745. *Panicum schiffneri*.  
 6746. *Imperata contracta*.  
 6747. *Lasiacis ligulata*.  
 6748. *Panicum trichanthum*.  
 6749. *Arthrostylidium sarmentosum*.  
 6750. *Isachne angustifolia*.  
 6751. *Arthrostylidium multispicatum*.  
 6752. *Panicum acuminatum*.  
 6753. *Panicum laxum*.  
 6754. *Bouteloua americana*.  
 6755. *Syntherisma sanguinalis*.  
 6756. *Paspalum glabrum*.  
 6757. *Sporobolus virginicus*.  
 6758. *Holcus sorghum*.  
 6759. *Paspalum glabrum*.  
 6760. *Lasiacis sorghoidea*.  
 6761. *Paspalum millegrana*.  
 6762. *Eriochrysis cayennensis*.  
 6763. *Panicum parvifolium*.  
 6764. *Axonopus aureus*.  
 6765. *Panicum acuminatum*.  
 6766. *Panicum chrysopsidifolium*.  
 6767. *Panicum polycaulon*.  
 6768. *Andropogon virgatus*.  
 6769. *Panicum stenodes*.  
 6770. *Panicum leucothrix*.  
 6771. *Andropogon semiberbis*.  
 6772. *Andropogon brevifolius*.  
 6773. *Sorghastrum parviflorum*.  
 6774. *Ichnanthus pallens*.  
 6775. *Panicum laxum*.  
 6775½. *Paspalum millegrana*.  
 6776. *Andropogon leucostachyus*.  
 6777. *Paspalum plicatulum*.  
 6778. *Panicum aquaticum*.  
 6779. *Paspalum notatum*.  
 6780. *Hymenachne amplexicaulis*.  
 6781. *Homalocenchrus hexandrus*.  
 6782. *Lasiacis divaricata*.  
 6783. *Panicum portoricense*.  
 6784. *Syntherisma panicea*.  
 6785. *Paspalum millegrana*.  
 6786. *Panicum parvifolium*.  
 6787. *Paspalum secans*.  
 6788. *Panicum parvifolium*.  
 6789. *Gymnopogon foliosus*.  
 6790. *Eragrostis ciliaris*.  
 6791. *Paspalum densum*.  
 6792. *Paspalum virgatum*.  
 6793. *Paspalum millegrana*.  
 6794. *Paspalum millegrana*.  
 6795. *Eriochloa subglabra*.  
 6796. *Panicum parvifolium*.  
 6797. *Homalocenchrus hexandrus*.  
 6798. *Eragrostis elliottii*.  
 6799. *Homalocenchrus hexandrus*.  
 6800. *Chaetochloa magna*.  
 6801. *Sacciolepis striata*.  
 6802. *Panicum condensum*.  
 6803. *Arundo donax*.  
 6804. *Panicum aquaticum*.  
 6805. *Ichnanthus pallens*.  
 6806. *Syntherisma panicea*.  
 6807. *Andropogon semiberbis*.  
 6808. *Andropogon fastigiatus*.  
 6809. *Lasiacis sorghoidea*.  
 6810. *Leptocoryphium lanatum*.  
 6811. *Paspalum leoninum*.  
 6812. *Aristida portoricensis*.  
 6813. *Paspalum leoninum*.  
 6814. *Lasiacis divaricata*.  
 6815. *Arundinella confinis*.



6816. *Andropogon gracilis*.  
 6817. *Andropogon saccharoides*.  
 6818. *Andropogon semiberbis*.  
 6819. *Andropogon leucostachyus*.  
 6820. *Paspalum portoricense*.  
 6821. *Holcus sorghum*.  
 6822. *Lasiacis sorghoidea*.  
 6823. *Lasiacis sorghoidea*.  
 6824. *Lasiacis sloanei*.  
 6825. *Lasiacis sloanei*.  
 6826. *Melinis minutiflora*.

CHRIST, H.<sup>1</sup>

1800. *Paspalum heterotrichon*.  
 1850. *Panicum acuminatum*.  
 1898. *Lasiacis divaricata*.  
 2089. *Pharus glaber*.  
 2158. *Andropogon semiberbis*.  
 2185. *Paspalum virgatum*.

## CLEMENTE, BROTHER.

2427. *Paspalum unispicatum*.  
 3442. *Cenchrus viridis*.

## COWELL, J. F.

522. *Panicum trichoides*.  
 583. *Panicum trichoides*.  
 628. *Ichnanthus pallens*.  
 13334. *Tricholaena rosea*.

## COWGILL, H. B.

106. *Coix lachryma-jobi*.  
 239. *Hymenachne amplexicaulis*.  
 423. *Paspalum plicatulum*.  
 611. *Oryza sativa*.  
 627. *Paspalum decumbens*.  
 648. *Lasiacis divaricata*.  
 684. *Eragrostis tephrosanthos*.  
 685. *Dactyloctenium aegyptium*.  
 686. *Andropogon leucostachyus*.  
 687. *Sorghastrum parviflorum*.  
 689. *Capriola dactylon*.  
 690. *Eragrostis tephrosanthos*.  
 691. *Paspalum millegrana*.  
 694. *Echinochloa colonum*.  
 695. *Paspalum virgatum*.  
 696. *Sorghastrum parviflorum*.

## CRUEGER, H.

20. *Panicum cyanescens*.  
 43. *Thrasya paspaloides*.  
 74. *Ichnanthus pallens*.  
 77. *Ichnanthus ichnodes*.  
 78. *Ichnanthus nemoralis*.  
 82 (in part). *Ichnanthus nemoralis*.  
 82 (in part). *Arthrostylidium excelsum*.  
 84. *Panicum milleflorum*.  
 85. *Panicum frondescens*.  
 88. *Leptochloa virgata*.  
 89. *Gymnopogon spicatus*.  
 224. *Panicum parvifolium*.

## CURTISS, A. H.

3. *Paspalum fimbriatum*.  
 67. *Chloris paraguayensis*.  
 72. *Chloris ciliata*.  
 75. *Aristida scabra*.  
 76. *Eragrostis ciliaris*.  
 80. *Chloris polydactyla*.  
 81. *Chloris sagraeana*.  
 94. *Arthrostylidium capillifolium*.  
 110. *Axonopus compressus*.  
 113. *Panicum adpersum*.  
 115. *Panicum barbinode*.  
 124. *Panicum maximum*.  
 131. *Uniola virgata*.  
 152. *Andropogon gracilis*.  
 156. *Paspalum glabrum*.  
 165. *Paspalum simpsoni*.  
 174. *Panicum condensum*.  
 175. *Panicum geminatum*.  
 177. *Panicum dichotomiflorum*.  
 192. *Paspalum conjugatum*.  
 236. *Achlaena piptostachya*.  
 267. *Panicum cayennense*.  
 268. *Oplismenus hirtellus*.  
 293. *Olyra latifolia*.  
 294 (in part). *Andropogon glomeratus*.  
 294 (in part). *Andropogon bicornis*.  
 304. *Sacciolepis vilvoides*.  
 305. *Panicum pilosum*.  
 306. *Axonopus compressus*.  
 307. *Panicum acuminatum*.  
 314. *Andropogon selloanus*.  
 323. *Sporobolus indicus*.

<sup>1</sup>These specimens, collected in Haiti, were received from Dr. I. Urban, the labels reading "leg. Christ."

327. *Paspalum decumbens*.  
 328. *Panicum acuminatum*.  
 371. *Reynaudia filiformis*.  
 374. *Paspalum filiforme*.  
 375. *Paspalum rottboellioides*.  
 379. *Paspalum neesii*.  
 380. *Andropogon gracilis*.  
 382. *Andropogon saccharoides*.  
 384. *Panicum diffusum*.  
 391. *Eragrostis hypnoides*.  
 393. *Leptocoryphium lanatum*.  
 396. *Mesosetum lolliiforme*.  
 406. *Panicum fusiforme*.  
 420. *Eragrostis cubensis*.  
 427. *Echinochloa colonum*.  
 428. *Sacciolepis myuros*.  
 460. *Andropogon virgatus*.  
 461. *Paratheria prostrata*.  
 464. *Panicum boliviense*.  
 493. *Ryttilix granularis*.  
 494. *Panicum diffusum*.  
 497. *Reimarochloa brasiliensis*.  
 501. *Paspalum virgatum*.  
 508. *Leptochloa filiformis*.  
 511. *Axonopus compressus*.  
 520. *Lasiacis compacta*.  
 521. *Syntherisma simpsoni*.  
 523. *Paspalum lindenianum*.  
 530. *Andropogon brevifolius*.  
 533. *Ischaemum rugosum*.  
 536. *Panicum reptans*.  
 546 (in part). *Bouteloua americana*.  
 546 (in part). *Bouteloua heterostega*.  
 561. *Holcus halepensis*.  
 571. *Opizia stolonifera*.  
 584. *Chloris cruciata*.  
 593. *Oplismenus hirtellus*.  
 598. *Panicum trichanthum*.  
 600. *Chloris ciliata*.  
 606. *Axonopus compressus*.  
 607. *Leptochloa virgata*.  
 636. *Dactyloctenium aegyptium*.  
 655. *Syntherisma sanguinalis*.  
 661. *Lithachne pauciflora*.  
 662. *Arundinella deppeana*.  
 691. *Panicum reptans*.  
 693. *Chaetochloa verticillata*.  
 714. *Panicum trichoides*.  
 748. *Panicum adpersum*.  
 749. *Chaetochloa geniculata*.

751. *Paspalum vaginatum*.  
 764. *Paspalum distichum*.

# DASH, J. S.<sup>1</sup>

255. *Anatherum zizanioides*.  
 259. *Panicum maximum*.  
 267. *Sporobolus indicus*.  
 346. *Pennisetum setosum*.  
 584. *Paspalum glabrum*.  
 602. *Eriochloa punctata*.  
 603. *Chaetochloa onurus*.

# DEWEY, L. H.

570. *Uniola paniculata*.

# DUSS, PÉRE.

3. *Eragrostis purpurascens*.  
 531. *Leptochloa virgata*.  
 532. *Leptochloa filiformis*.  
 533. *Themeda quadrivalvis*.  
 536. *Panicum diffusum*.  
 537. *Panicum fasciculatum*.  
 538. *Panicum fasciculatum*.  
 539. *Panicum barbinode*.  
 540. *Eriochloa punctata*.  
 542 (in part). *Echinochloa sabulicola*.  
 542 (in part). *Echinochloa spectabilis*.  
 544. *Chaetochloa barbata*.  
 545 (in part). *Paspalum distichum*.  
 545 (in part). *Paspalum vaginatum*.  
 548. *Paspalum plicatulum*.  
 548½. *Paspalum glabrum*.  
 549. *Paspalum paniculatum*.  
 551. *Paspalum glabrum*.  
 558. *Paspalum notatum*.  
 559. *Arundinella confinis*.  
 563. *Arthrostylidium obtusatum*.  
 564. *Arundo donax*.  
 565. *Eragrostis prolifera*.  
 566. *Eragrostis amabilis*.  
 567. *Eragrostis amabilis*.  
 720. *Paspalum plicatulum*.  
 733. *Lithachne pauciflora*.  
 740. *Eragrostis ciliaris laxa*.  
 770. *Lasiacis sorghoidea*.

<sup>1</sup>These are specimens collected by Dash and distributed from the Barbados Botanic Station. Other specimens distributed by the station but with no collector given are listed under Barbados.

772. *Ichnanthus pallens*.  
 776. *Axonopus compressus*.  
 778. *Oplismenus hirtellus*.  
 778b. *Oplismenus setarius*.  
 780. *Pharus glaber*.  
 781. *Pharus latifolius*.  
 782. *Chloris paraguayensis*.  
 783. *Capriola dactylon*.  
 784. *Andropogon salzmanni*.  
 790. *Cenchrus viridis*.  
 791. *Cenchrus echinatus*.  
 793. *Eragrostis tephrosanthos*.  
 1270. *Eleusine indica*.  
 1272. *Chloris radiata*.  
 1273. *Chloris ciliata*.  
 1275. *Paspalum fimbriatum*.  
 1276. *Paspalum conjugatum*.  
 1277. *Sporobolus virginicus*.  
 1278. *Sporobolus berteroi*.  
 1279. *Sporobolus indicus*.  
 1280. *Coix lachryma-jobi*.  
 1283. *Phragmites phragmites*.  
 1284. *Gynerium sagittatum*.  
 1285. *Bambos vulgaris*.  
 1288. *Panicum maximum*.  
 1290. *Panicum reptans*.  
 1293. *Panicum geminatum*.  
 1295. *Ryttilix granularis*.  
 1297. *Andropogon condensatus*.  
 1301. *Andropogon glomeratus*.  
 1302. *Andropogon bicornis*.  
 1303. *Anatherum zizanioides*.  
 1305. *Eragrostis ciliaris laxa*.  
 1306. *Imperata contracta*.  
 1307. *Eragrostis ciliaris laxa*.  
 1311. *Isachne disperma*.  
 1312. *Isachne rigidifolia*.  
 1315. *Chaetochloa italica*.  
 1316. *Pennisetum setosum*.  
 1317. *Paspalum saccharoides*.  
 1318. *Valota insularis*.  
 1321. *Panicum trichoides*.  
 1322. *Echinochloa colonum*.  
 1323. *Syntherisma digitata*.  
 1324. *Stenotaphrum secundatum*.  
 1326. *Bouteloua americana*.  
 1329. *Pappophorum alopecuroides*.  
 2673. *Paspalum plicatulum*.  
 2677. *Paspalum paniculatum*.  
 2678. *Axonopus compressus*.  
 2681. *Panicum trichoides*.  
 2684. *Echinochloa colonum*.  
 2686. *Ichnanthus pallens*.  
 2689. *Panicum barbinode*.  
 2690. *Panicum geminatum*.  
 2691. *Panicum fasciculatum*.  
 2692. *Syntherisma sanguinalis*.  
 2693. *Syntherisma digitata*.  
 2694. *Chaetochloa geniculata*.  
 2696. *Ischaemum latifolium*.  
 2698. *Chaetochloa setosa*.  
 2700. *Pharus latifolius*.  
 2702. *Coix lachryma-jobi*.  
 2704. *Eleusine indica*.  
 2705. *Isachne angustifolia*.  
 2706. *Eragrostis ciliaris*.  
 2707. *Eragrostis ciliaris*.  
 2708. *Chloris radiata*.  
 2709. *Eriochloa punctata*.  
 2711. *Dactyloctenium aegyptium*.  
 2712. *Arthraxon quinarianus*.  
 2714. *Oplismenus setarius*.  
 2716. *Leptochloa virgata*.  
 2717. *Antheophora hermaphrodita*.  
 2718. *Cenchrus viridis*.  
 2719. *Andropogon gracilis*.  
 3136. *Arthraxon quinarianus*.  
 3137. *Heteropogon contortus*.  
 3138. *Gynerium sagittatum*.  
 3140. *Sporobolus littoralis*.  
 3141. *Sporobolus berteroi*.  
 3141b. *Sporobolus indicus*.  
 3142. *Eragrostis prolifera*.  
 3143. *Eragrostis pilosa*.  
 3143b. *Eragrostis amabilis*.  
 3147. *Olyra latifolia*.  
 3148. *Lithachne pauciflora*.  
 3150. *Pharus glaber*.  
 3151. *Stenotaphrum secundatum*.  
 3158. *Chloris paraguayensis*.  
 3158b. *Chloris ciliata*.  
 3159. *Aristida adscensionis*.  
 3161. *Echinochloa sabulicola*.  
 3162. *Spartina patens juncea*.  
 3164. *Pappophorum alopecuroides*.  
 3171. *Andropogon salzmanni*.  
 3172. *Ryttilix granularis*.  
 3175 (in part). *Chaetochloa barbata*.  
 3175 (in part). *Echinochloa pyramidalis*.  
 3176. *Echinochloa pyramidalis*.  
 3177. *Panicum utowanense*.  
 3178. *Panicum dichotomiflorum*.  
 3179. *Panicum laxum*.  
 3180. *Panicum adspersum*.  
 3183. *Lasiacis sorghoidea*.

3184. *Panicum ghiesbreghtii*.  
 3185. *Chaetochloa palmifolia*.  
 3186. *Panicum maximum*.  
 3188. *Chaetochloa setosa*.  
 3189. *Isachne disperma*.  
 3190. *Isachne rigidifolia*.  
 3366. *Paspalum saccharoides*.  
 3421. *Arundo donax*.  
 3422. *Eragrostis prolifera*.  
 3522. *Orthoclada laxa*.  
 3529. *Panicum reptans*.  
 3548. *Andropogon glomeratus*.  
 3584. *Panicum geminatum*.  
 3592. *Syntherisma sanguinalis*.  
 3609. *Paspalum distichum*.  
 3613. *Lasiacis sorghoidea*.  
 3678 (in part). *Andropogon nodosus*.  
 3678 (in part). *Andropogon caricosus*.  
 3807. *Leptochloa filiformis*.  
 3817. *Andropogon condensatus*.  
 3826. *Oplismenus hirtellus*.  
 3886. *Imperata contracta*.  
 3915. *Paspalum olivaceum*.  
 3917. *Panicum hirsutum*.  
 3918. *Chaetochloa magna*.  
 3919. *Panicum condensum*.  
 3920. *Echinochloa pyramidalis*.  
 3937. *Andropogon glomeratus*.  
 3978. *Arthrostylidium excelsum*.  
 4011. *Paspalum plicatulum*.  
 4012. *Paspalum olivaceum*.  
 4014. *Leptochloa virgata*.  
 4015. *Chloris paraguayensis*.  
 4017. *Pennisetum setosum*.  
 4021. *Homalocenchrus hexandrus*.  
 4022. *Andropogon salzmanni*.  
 4023. *Eragrostis ciliaris laxa*.  
 4024. *Eragrostis ciliaris*.  
 4025. *Eragrostis prolifera*.  
 4026. *Andropogon condensatus*.  
 4035. *Phragmites phragmites*.  
 4041. *Eragrostis pilosa*.  
 4056. *Oplismenus hirtellus*.  
 4059. *Paspalum nutans*.  
 4110. *Chloris sagraeana*.  
 4111. *Capriola dactylon*.  
 4122. *Bambos vulgaris*.  
 4152. *Pennisetum setosum*.  
 4153. *Arundinella confinis*.  
 4154. *Panicum pilosum*.  
 4224. *Paspalum densum*.  
 4507. *Paspalum orbiculatum*.  
 4508. *Sporobolus muralis*.

4712. *Eragrostis pilosa*.  
 4723. *Themeda quadrivalvis*.  
 5157. *Chloris radiata*.

EARLE, F. S.

650. *Eragrostis cubensis*.  
 682. *Leptocoryphium lanatum*.

EARLE, F. S., AND BAKER, C. F.

2455. *Panicum reptans*.

EARLE, F. S., AND WILSON, P.

343. *Panicum laxum*.  
 1637. *Andropogon gracilis*.

EGGERS, H. F. A.

3. *Valota eggertii*.  
 4. *Paspalum plicatulum*.  
 232. *Syntherisma sanguinalis*.  
 292. *Lasiacis divaricata*.  
 293. *Panicum reptans*.  
 295. *Valota eggertii*.  
 469. *Cenchrus echinatus*.  
 602. *Imperata contracta*.  
 658. *Hymenachne amplexicaulis*.  
 666. *Sacciolepis striata*.  
 676. *Paspalum millegrana*.  
 685. *Echinochloa sabulicola*.  
 691. *Paspalum vaginatum*.  
 708. *Chloris petraea*.  
 709. *Chaetochloa magna*.  
 712. *Phragmites phragmites*.  
 795. *Paspalum paniculatum*.  
 1056. *Isachne disperma*.  
 1057. *Paspalum paniculatum*.  
 1074. *Trachypogon plumosus*.  
 1081. *Panicum pilosum*.  
 1172. *Ichnanthus pallens*.  
 1176. *Paspalum virgatum*.  
 1182. *Gynerium sagittatum*.  
 1195. *Phragmites phragmites*.  
 1207. *Eragrostis hypnoides*.  
 1226. *Panicum maximum*.  
 1327. *Chaetochloa geniculata*.  
 1328. *Panicum barbinode*.  
 1329. *Panicum laxum*.  
 1379. *Trachypogon plumosus*.  
 1399. *Orthoclada laxa*.  
 1961. *Syntherisma digitata*.

1964. *Paspalum conjugatum*.  
 2129. *Panicum xalapense*.  
 2139. *Eragrostis tephrosanthos*.  
 2227b. *Danthonia domingensis*.  
 2321 (in part). *Andropogon gracilis*.  
 2321 (in part). *Andropogon leucostachyus*.  
 2361. *Uniola virgata*.  
 2378. *Chaetochloa setosa*.  
 2380. *Lasiacis divaricata*.  
 2439. *Paspalum pulchellum*.  
 2466. *Olyra latifolia*.  
 2517. *Uniola virgata*.  
 2547. *Paspalum plicatulum*.  
 2566. *Eragrostis hypnoides*.  
 2574. *Stenotaphrum secundatum*.  
 2781. *Syntherisma sanguinalis*.  
 3003. *Aristida adscensionis*.  
 3068. *Panicum diffusum*.  
 3121. *Lasiacis harrisii*.  
 3299. *Cenchrus echinatus*.  
 3312a. *Leptochloa virgata*.  
 3319. *Tripsacum dactyloides*.  
 3514. *Arundinella confinis*.  
 3579. *Senites zeugites*.  
 3583. *Isachne arundinacea*.  
 3724. *Chloris cruciata*.  
 3978. *Panicum exiguiflorum*.  
 3980. *Cenchrus echinatus*.  
 4092. *Chloris petraea*.  
 4119. *Uniola paniculata*.  
 4333. *Uniola virgata*.  
 4405. *Panicum dichotomiflorum*.  
 4444. *Andropogon gracilis*.  
 4447. *Aristida gyrans*.  
 4466. *Olyra latifolia*.  
 4512. *Panicum dichotomiflorum*.  
 4655. *Oplismenus hirtellus*.  
 4678. *Holcus halepensis*.  
 4690. *Syntherisma digitata*.  
 4708. *Pharus glaber*.  
 4814. *Ichnanthus pallens*.  
 4834. *Leptochloa fascicularis*.  
 4870. *Panicum barbinode*.  
 4875. *Panicum fasciculatum*.  
 4939. *Pharus parvifolius*.  
 4963. *Gynerium sagittatum*.  
 5317. *Paspalum paniculatum*.  
 5346. *Panicum reptans*.  
 5349. *Leptochloa domingensis*.  
 5350. *Panicum trichanthum*.  
 5356. *Lithachne pauciflora*.  
 5404a. *Homalocenchrus monandrus*.  
 5406. *Panicum ghiesbreghtii*.  
 5534. *Panicum pilosum*.  
 5549. *Olyra latifolia*.  
 5553. *Paspalum virgatum*.  
 5650. *Bouteloua americana*.  
 5654. *Andropogon pertusus panormitanus*.  
 5682. *Chaetochloa palmifolia*.  
 5685. *Ichnanthus pallens*.  
 5743. *Chloris radiata*.  
 5752. *Axonopus compressus*.  
 5810. *Panicum zizanioides*.  
 5987. *Panicum trichoides*.  
 6224. *Lasiacis sorghoidea*.  
 6544. *Andropogon brevifolius*.  
 6546. *Lasiacis sloanei*.  
 6560. *Ichnanthus pallens*.  
 6577. *Andropogon condensatus*.  
 6582. *Holcus sorghum sudanensis*.  
 6710. *Ischaemum latifolium*.  
 6831. *Coix lachryma-jobi*.  
 7128. *Chaetochloa barbata*.  
 7186. *Ichnanthus pallens*.  
 7252. *Sporobolus littoralis*.

ELLIOTT, W. R.

138. *Bouteloua americana*.

FAWCETT, W.

9226. *Bambusa nana*.

FINLAY.

39. *Paspalum decumbens*.

FISHER, M. J.

15. *Eragrostis tephrosanthos*.  
 32. *Paspalum millegrana*.  
 38. *Eragrostis tephrosanthos*.  
 57. *Dactyloctenium aegyptium*.  
 58. *Eleusine indica*.  
 59. *Panicum fasciculatum*.  
 60. *Echinochloa colonum*.  
 61. *Leptochloa filiformis*.  
 62. *Eragrostis tephrosanthos*.  
 63. *Chloris radiata*.

FISHLOCK, W. C.

64. *Coix lachryma-jobi*.  
 65. *Echinochloa colonum*.

## FREDHOLM, A.

3061. *Cenchrus echinatus*.  
 3067. *Stenotaphrum secundatum*.  
 3131. *Coix lachryma-jobi*.  
 3134. *Rytidix granularis*.  
 3193. *Lithachne pauciflora*.  
 3196. *Oplismenus setarius*.  
 3282. *Panicum trichoides*.  
 3284. *Paspalum fimbriatum*.  
 3285. *Chloris radiata*.  
 3291. *Andropogon glomeratus*.  
 3299. *Paspalum virgatum*.  
 3305. *Chloris petraea*.  
 3306. *Paspalum conjugatum*.  
 3307. *Eleusine indica*.  
 3315. *Chaetochloa geniculata*.  
 3316. *Sporobolus indicus*.  
 3319. *Panicum maximum*.  
 3333. *Andropogon virginicus*.  
 3334. *Andropogon leucostachyus*.  
 3341. *Eragrostis ciliaris*.

## FUERTES, M.

43. *Panicum adpersum*.  
 567. *Pharus glaber*.  
 614. *Pharus latifolius*.  
 808. *Uniola virgata*.  
 908. *Chloris ciliata*.  
 1261. *Sporobolus indicus*.  
 1263. *Cenchrus echinatus*.  
 1274. *Echinochloa colonum*.  
 1275. *Sporobolus indicus*.  
 1276. *Lasiacis divaricata*.  
 1278. *Eleusine indica*.  
 1279. *Holcus sorghum sudanensis*.  
 1280. *Chaetochloa geniculata*.  
 1281. *Andropogon glomeratus*.  
 1282. *Oplismenus hirtellus*.  
 1283. *Leptochloa domingensis*.  
 1284. *Panicum distantiflorum*.  
 1289. *Syntherisma sanguinalis*.  
 1291. *Sporobolus argutus*.  
 1365. *Holcus sorghum sudanensis*.  
 1376. *Bouteloua americana*.  
 1377. *Panicum reptans*.  
 1378. *Chaetochloa setosa*.  
 1417. *Panicum reptans*.  
 1418. *Heteropogon contortus*.  
 1419. *Echinochloa spectabilis*.  
 1420. *Andropogon urbanianus*.  
 1421. *Chloris leptantha*.  
 1422. *Valota insularis*.  
 1423. *Scutachne dura*.

1424. *Tripsacum dactyloides*.  
 1426. *Scutachne dura*.  
 1427. *Panicum distantiflorum*.  
 1428. *Leptochloa domingensis*.  
 1455b. *Heteropogon contortus*.  
 1729. *Isachne rigidifolia*.  
 1776. *Danthonia domingensis*.  
 1783. *Agrostis perennans*.  
 1846. *Paspalum plicatulum*.  
 1876. *Chaetochloa geniculata*.  
 1886. *Andropogon semiberbis*.

## GEOGRAPHICAL SOCIETY OF BALTIMORE.

4. *Distichlis spicata*.  
 7. *Uniola virgata*.  
 46. *Arthrostylidium capillifolium*.  
 95. *Sporobolus indicus*.  
 96. *Stenotaphrum secundatum*.  
 97. *Capriola dactylon*.  
 99. *Chloris petraea*.  
 101. *Cenchrus carolinianus*.  
 109. *Uniola paniculata*.  
 197. *Paspalum glabrum*.  
 260. *Sporobolus domingensis*.  
 261. *Chloris petraea*.  
 262. *Chloris polydactyla*.  
 263. *Chaetochloa geniculata*.  
 266. *Sporobolus berterianus*.  
 267. *Paspalum glabrum*.  
 285. *Eleusine indica*.  
 301. *Uniola virgata*.  
 338. *Panicum maximum*.  
 346. *Sporobolus virginicus*.  
 349. *Uniola virgata*.  
 389. *Sporobolus virginicus*.  
 415. *Spartina patens juncea*.  
 439. *Sporobolus virginicus*.  
 479. *Paspalum distichum*.  
 489. *Panicum dichotomiflorum*.  
 491. *Distichlis spicata*.  
 522. *Chaetochloa setosa*.  
 527. *Sporobolus virginicus*.  
 542. *Andropogon semiberbis*.  
 546. *Paspalum vaginatum*.  
 547. *Sporobolus virginicus*.  
 550. *Sporobolus indicus*.  
 569. *Andropogon virginicus*.  
 570. *Syntherisma sanguinalis*.

## GLASGOW, C. A.

1. *Sporobolus indicus*.  
 3. *Paspalum conjugatum*.

4. *Eragrostis ciliaris*.
5. *Chaetochloa geniculata*.
6. *Sporobolus muralis*.
7. *Eleusine indica*.
8. *Chloris radiata*.
9. *Paspalum distichum*.
10. *Chaetochloa barbata*.
11. *Leptochloa filiformis*.
13. *Axonopus compressus*.
15. *Syntherisma sanguinalis*.

GOLL, P. P.

19. *Chloris radiata*.
20. *Eleusine indica*.
22. *Sporobolus berterioanus*.
23. *Eriochloa subglabra*.
28. *Chaetochloa geniculata*.
31. *Panicum maximum*.
136. *Ichnanthus pallens*.
186. *Echinochloa colonum*.
227. *Lasiacis divaricata*.
235. *Paspalum plicatulum*.
236. *Chaetochloa geniculata*.
316. *Coix lachryma-jobi*.
326. *Andropogon leucostachyus*.
385. *Panicum fasciculatum*.
387. *Andropogon bicornis*.
397. *Andropogon bicornis*.
398. *Sporobolus berterioanus*.
473. *Eragrostis tephrosanthos*.
479. *Valota insularis*.
511. *Cenchrus echinatus*.
588. *Panicum fasciculatum*.
613. *Panicum barbinode*.
623. *Oplismenus hirtellus*.
658. *Eleusine indica*.
660. *Echinochloa colonum*.
662. *Panicum reptans*.
699. *Lasiacis divaricata*.
778. *Arundo donax*.
846. *Homalocenchrus hexandrus*.
878. *Echinochloa colonum*.
884. *Ichnanthus pallens*.
923. *Paspalum millegrana*.
984. *Coix lachryma-jobi*.

GOUIN.

59. *Trachypogon gouini*.

GUNDLACH, J.

1259. *Imperata contracta*.

HAHN, L.

163. *Leptochloa virgata*.
476. *Eragrostis ciliaris*.
479. *Rytilix granularis*.
616. *Panicum schiffneri*.
683. *Sporobolus indicus*.
690. *Andropogon condensatus*.
695. *Eleusine indica*.
696. *Chloris radiata*.
830. *Gynerium sagittatum*.
921. *Valota insularis*.
1012. *Pennisetum setosum*.
1047. *Panicum trichoides*.
1060. *Paspalum virgatum*.
1105. *Syntherisma digitata*.
1259. *Hymenachne amplexicaulis*.
1381. *Dactyloctenium aegyptium*.
1435. *Isachne rigidifolia*.
1527. *Syntherisma digitata*.

HARRIS, W.

424. *Oplismenus setarius*.
6633. *Coix lachryma-jobi*.
6740. *Dactyloctenium aegyptium*.
6826. *Oplismenus setarius*.
6845. *Panicum reptans*.
6873. *Chloris radiata*.
9049. *Chloris paraguayensis*.
9297. *Chaetochloa setosa*.
9497. *Paspalum notatum*.
9499. *Anthoxanthum odoratum*.
9503. *Andropogon gracilis*.
9504. *Festuca bromoides*.
9541. *Eragrostis ciliaris*.
9542. *Aristida cognata*.
9622. *Andropogon gracilis*.
9665. *Chloris polydactyla*.
9673. *Chaetochloa onurus*.
9682. *Sporobolus indicus*.
9739. *Chaetochloa scandens*.
9777. *Pharus glaber*.
9929. *Hymenachne amplexicaulis*.
10112. *Poa annua*.
10893. *Bambos nana*.
10902. *Chaetochloa geniculata*.
10906. *Poa annua*.
10907. *Briza minor*.
10909. *Briza maxima*.
10910. *Arthraxon martinianus*.
10911. *Chaetochloa palmifolia*.
10912. *Andropogon bicornis*.

10914. *Danthonia shrevei*.  
 10916. *Bromus sterilis*.  
 10917. *Festuca bromoides*.  
 10919. *Bromus unioloides*.  
 10920. *Poa annua*.  
 10930. *Panicum barbinode*.  
 11109. *Panicum acuminatum*.  
 11149. *Paspalum densum*.  
 11156. *Chaetochloa geniculata*.  
 11157. *Chaetochloa scandens*.  
 11163. *Panicum chrysopsidifolium*.  
 11170. *Panicum rudgei*.  
 11235. *Holcus halepensis*.  
 11236. *Antheophora harmaphrodita*.  
 11237. *Cenchrus viridis*.  
 11238. *Leptochloa filiformis*.  
 11239. *Cenchrus echinatus*.  
 11240. *Chloris radiata*.  
 11241. *Echinochloa colonum*.  
 11242. *Eragrostis ciliaris laxa*.  
 11243 (in part). *Eragrostis ciliaris laxa*.  
 11243 (in part). *Eragrostis amabilis*.  
 11244. *Eleusine indica*.  
 11245. *Valota insularis*.  
 11246. *Sporobolus indicus*.  
 11247. *Panicum adpersum*.  
 11248. *Capriola dactylon*.  
 11249. *Panicum maximum*.  
 11250. *Bromus unioloides*.  
 11251. *Syntherisma sanguinalis*.  
 11252. *Panicum fasciculatum*.  
 11253. *Oplismenus hirtellus*.  
 11254. *Panicum barbinode*.  
 11255. *Panicum fasciculatum*.  
 11256. *Manisuris exaltata*.  
 11257. *Leptochloa virgata*.  
 11258. *Chloris paraguayensis*.  
 11259. *Heteropogon contortus*.  
 11260. *Lasiacis sloanei*.  
 11261. *Leptochloa domingensis*.  
 11262. *Andropogon pertusus*.  
 11263. *Andropogon virginicus*.  
 11264. *Panicum glutinosum*.  
 11265. *Andropogon gracilis*.  
 11266. *Poa annua*.  
 11267. *Paspalum fimbriatum*.  
 11268. *Andropogon virginicus*.  
 11269. *Syntherisma longiflora*.  
 11270. *Andropogon bicornis*.  
 11271 (in part). *Syntherisma longiflora*.  
 11271 (in part). *Syntherisma argyrostachya*.  
 11272. *Chaetochloa lutescens*.  
 11273. *Syntherisma sanguinalis*.  
 11274. *Briza maxima*.  
 11275. *Bromus sterilis*.  
 11276. *Festuca bromoides*.  
 11278. *Paspalum paniculatum*.  
 11279. *Lithachne pauciflora*.  
 11280a. *Panicum pilosum*.  
 11281. *Sporobolus indicus*.  
 11282. *Chaetochloa geniculata*.  
 11283. *Syntherisma longiflora*.  
 11284. *Paspalum plicatulum*.  
 11285. *Panicum laxum*.  
 11286. *Chaetochloa palmifolia*.  
 11287. *Paspalum paniculatum*.  
 11288. *Andropogon fastigiatus*.  
 11289. *Paspalum plicatulum*.  
 11290. *Heteropogon contortus*.  
 11291. *Leptochloa domingensis*.  
 11292. *Chaetochloa setosa*.  
 11293. *Andropogon saccharoides*.  
 11294. *Coix lachryma-jobi*.  
 11295. *Andropogon virginicus*.  
 11296. *Ichnanthus nemorosus*.  
 11297. *Lasiacis divaricata*.  
 11298. *Ichnanthus pallens*.  
 11299. *Panicum trichoides*.  
 11300. *Pennisetum orientale triflorum*.  
 11301. *Chaetochloa setosa*.  
 11302. *Anthoxanthum odoratum*.  
 11303. *Chaetochloa setosa*.  
 11304. *Dactyloctenium aegyptium*.  
 11305. *Nazia aliena*.  
 11306. *Sporobolus argutus*.  
 11307. *Oplismenus setarius*.  
 11308. *Paspalum conjugatum*.  
 11310. *Sporobolus berterioanus*.  
 11311. *Cenchrus echinatus*.  
 11312. *Uniola virgata*.  
 11313. *Anatherum zizanioides*.  
 11314. *Isachne pygmaea*.  
 11315. *Panicum acuminatum*.  
 11316. *Isachne rigens*.  
 11317. *Eleusine indica*.  
 11318. *Andropogon gracilis*.  
 11319. *Pharus glaber*.  
 11320. *Olyra latifolia*.  
 11321. *Sporobolus argutus*.  
 11322. *Nazia aliena*.  
 11323. *Poa annua*.  
 11324. *Panicum fasciculatum*.  
 11325. *Lasiacis sloanei*.



11326. *Homalocenchrus monandrus*.  
 11327. *Senites zeugites*.  
 11328. *Panicum trichoides*.  
 11329. *Eragrostis ciliaris*.  
 11330. *Pharus glaber*.  
 11331. *Homalocenchrus monandrus*.  
 11332. *Andropogon gracilis*.  
 11333. *Isachne rigens*.  
 11334. *Rytillix granularis*.  
 11335. *Eragrostis ciliaris*.  
 11336. *Isachne rigens*.  
 11337. *Isachne arundinacea*.  
 11338. *Andropogon gracilis*.  
 11339. *Oplismenus setarius*.  
 11341. *Chloris cruciata*.  
 11342. *Oplismenus setarius*.  
 11343. *Panicum adpersum*.  
 11344. *Andropogon fastigiatus*.  
 11345. *Panicum fasciculatum*.  
 11346. *Olyra latifolia*.  
 11347. *Chloris paraguayensis*.  
 11348. *Chaetochloa setosa*.  
 11349. *Andropogon leucostachyus*.  
 11351. *Heteropogon contortus*.  
 11352. *Panicum geminatum*.  
 11353. *Paspalum plicatulum*.  
 11354. *Lasiacis harrisii*.  
 11355. *Chusquea abietifolia*.  
 11356. *Sporobolus virginicus*.  
 11357. *Leptothrium rigidum*.  
 11358. *Andropogon fastigiatus*.  
 11359. *Oplismenus hirtellus*.  
 11360. *Chaetochloa barbata*.  
 11361. *Chloris radiata*.  
 11362. *Andropogon virginicus*.  
 11363. *Leptochloa filiformis*.  
 11364. *Oplismenus hirtellus*.  
 11365. *Sporobolus purpurascens*.  
 11367. *Leptochloa domingensis*.  
 11369. *Bouteloua americana*.  
 11370. *Andropogon gracilis*.  
 11371. *Panicum acuminatum*.  
 11372. *Bouteloua americana*.  
 11373. *Dactyloctenium aegyptium*.  
 11374. *Eragrostis pilosa*.  
 11375. *Chloris cruciata*.  
 11378. *Andropogon virginicus*.  
 11379. *Paspalum paniculatum*.  
 11380. *Chaetochloa scandens*.  
 11382. *Chaetochloa geniculata*.  
 11383. *Andropogon bicornis*.  
 11384. *Eragrostis ciliaris laxa*.  
 11385. *Panicum zizanioides*.  
 11386. *Axonopus compressus*.  
 11387. *Manisuris exaltata*.  
 11388. *Sporobolus virginicus*.  
 11390. *Eragrostis pilosa*.  
 11391. *Festuca myurus*.  
 11392. *Chloris cruciata*.  
 11393. *Chloris cruciata*.  
 11394. *Bouteloua americana*.  
 11395. *Panicum glutinosum*.  
 11396. *Andropogon saccharoides*.  
 11397. *Pharus glaber*.  
 11398. *Lasiacis sorghoidea*.  
 11399. *Andropogon glomeratus*.  
 11400. *Panicum fasciculatum*.  
 11407. *Dactyloctenium aegyptium*.  
 11408. *Paspalum caespitosum*.  
 11409. *Valota insularis*.  
 11410. *Lasiacis sorghoidea*.  
 11411. *Eragrostis tephrosanthos*.  
 11412. *Andropogon gracilis*.  
 11413. *Syntherisma argyrostachya*.  
 11414. *Briza minor*.  
 11415. *Stenotaphrum secundatum*.  
 11416. *Arthraxon quartinianus*.  
 11417. *Isachne rigens*.  
 11418. *Senites zeugites*.  
 11419. *Echinochloa colonum*.  
 11420. *Panicum zizanioides*.  
 11429. *Danthonia shrevei*.  
 11431. *Senites zeugites*.  
 11432. *Isachne rigens*.  
 11433. *Pennisetum orientale triflorum*.  
 11434. *Sporobolus purpurascens*.  
 11435. *Panicum acuminatum*.  
 11436. *Olyra latifolia*.  
 11437. *Sorghastrum parviflorum*.  
 11438. *Poa annua*.  
 11439. *Andropogon tener*.  
 11440. *Panicum glutinosum*.  
 11442. *Eragrostis pilosa*.  
 11443. *Bouteloua americana*.  
 11444. *Panicum acuminatum*.  
 11445. *Isachne rigens*.  
 11446. *Oplismenus setarius*.  
 11448. *Paspalum conjugatum*.  
 11449. *Andropogon saccharoides*.  
 11450. *Eragrostis tephrosanthos*.  
 11451. *Bouteloua americana*.  
 11452. *Arundinella confinis*.  
 11453. *Anthoxanthum odoratum*.  
 11454. *Lasiacis sloanei*.  
 11455. *Bromus unioloides*.  
 11457. *Chaetochloa lutescens*.

11458. *Chaetochloa setosa*.  
 11459. *Homalocenchrus monandrus*.  
 11461. *Pharus glaber*.  
 11462. *Arundinella confinis*.  
 11463. *Sorghastrum parviflorum*.  
 11464. *Andropogon fastigiatus*.  
 11465. *Oplismenus hirtellus*.  
 11466. *Panicum laxum*.  
 11467. *Lithachne pauciflora*.  
 11468. *Isachne arundinacea*.  
 11469. *Lasiacis sorghoidea*.  
 11470. *Panicum fasciculatum*.  
 11471. *Andropogon piptatherus*.  
 11472. *Andropogon brevifolius*.  
 11473. *Chloris ciliata*.  
 11474. *Aristida adscensionis*.  
 11475. *Valota insularis*.  
 11476. *Ichnanthus nemorosus*.  
 11477. *Nazia aliena*.  
 11478. *Andropogon pertusus*.  
 11479. *Chaetochloa setosa*.  
 11480. *Aristida adscensionis*.  
 11481. *Bouteloua americana*.  
 11482. *Chloris paraguayensis*.  
 11483. *Panicum molle*.  
 11484. *Eragrostis pilosa*.  
 11485. *Ichnanthus pallens*.  
 11486. *Lasiacis divaricata*.  
 11487. *Lasiacis harrisii*.  
 11488. *Eragrostis pilosa*.  
 11489. *Bromus sterilis*.  
 11490. *Lasiacis divaricata*.  
 11491. *Lasiacis divaricata*.  
 11492. *Chloris radiata*.  
 11493. *Eragrostis pilosa*.  
 11494. *Panicum acuminatum*.  
 11495. *Eragrostis ciliaris*.  
 11496. *Poa annua*.  
 11497. *Gynerium sagittatum*.  
 11498. *Panicum adpersum*.  
 11499. *Dactyloctenium aegyptium*.  
 11500. *Aristida adscensionis*.  
 11501. *Nazia aliena*.  
 11502. *Chloris leptantha*.  
 11503. *Sporobolus argutus*.  
 11504. *Panicum molle*.  
 11505. *Leptochloa virgata*.  
 11506. *Chloris paraguayensis*.  
 11507. *Andropogon fastigiatus*.  
 11508. *Panicum glutinosum*.  
 11509. *Festuca bromoides*.  
 11510. *Dactyloctenium aegyptium*.  
 11511. *Chaetochloa barbata*.  
 11512. *Panicum adpersum*.  
 11513. *Aristida adscensionis*.  
 11514. *Andropogon pertusus*.  
 11515. *Chloris leptantha*.  
 11517. *Isachne arundinacea*.  
 11518. *Holcus sorghum*.  
 11519. *Arundinella confinis*.  
 11520. *Eragrostis pilosa*.  
 11521. *Holcus halepensis*.  
 11522. *Paspalum decumbens*.  
 11523. *Ichnanthus pallens*.  
 11524. *Panicum pilosum*.  
 11525. *Anthoxanthum odoratum*.  
 11526. *Festuca bromoides*.  
 11527. *Briza minor*.  
 11528. *Lasiacis divaricata*.  
 11529. *Isachne arundinacea*.  
 11530. *Lasiacis divaricata*.  
 11531. *Lasiacis sloanei*.  
 11532. *Imperata contracta*.  
 11533. *Arundinella confinis*.  
 11534. *Paspalum paniculatum*.  
 11535. *Chaetochloa palmifolia*.  
 11536. *Arthraxon quinarianus*.  
 11537. *Olyra latifolia*.  
 11538. *Themeda arguens*.  
 11539. *Panicum reptans*.  
 11540. *Heteropogon contortus*.  
 11541. *Eragrostis ciliaris*.  
 11543. *Isachne rigens*.  
 11544. *Paspalum notatum*.  
 11545. *Paspalum decumbens*.  
 11546. *Andropogon brevifolius*.  
 11547. *Panicum pilosum*.  
 11548. *Chloris radiata*.  
 11549. *Ichnanthus pallens*.  
 11550. *Arthraxon quinarianus*.  
 11551. *Isachne arundinacea*.  
 11552. *Lasiacis harrisii*.  
 11553. *Poa annua*.  
 11554. *Panicum acuminatum*.  
 11555. *Andropogon brevifolius*.  
 11557. *Anatherum zizanioides*.  
 11558. *Andropogon piptatherus*.  
 11559. *Bouteloua americana*.  
 11560. *Eragrostis pilosa*.  
 11561. *Paspalum paniculatum*.  
 11562. *Anatherum zizanioides*.  
 11563. *Arthraxon quinarianus*.  
 11564. *Festuca myurus*.  
 11565. *Panicum barbinode*.  
 11566. *Panicum trichoides*.  
 11567. *Isachne arundinacea*.

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|---|--|
| 11568. <i>Sporobolus purpurascens</i> . | 11657. <i>Chaetochloa onurus</i> .       |
| 11569. <i>Imperata contracta</i> .      | 11660. <i>Imperata brasiliensis</i> .    |
| 11570. <i>Paspalum notatum</i> .        | 11661. <i>Eragrostis elliottii</i> .     |
| 11572. <i>Andropogon brevifolius</i> .  | 11664. <i>Eragrostis cubensis</i> .      |
| 11576. <i>Phragmites phragmites</i> .   | 11691. <i>Panicum ghiesbreghtii</i> .    |
| 11577. <i>Andropogon brevifolius</i> .  | 11695. <i>Paspalum distachyon</i> .      |
| 11578. <i>Andropogon gracilis</i> .     | 11700. <i>Festuca bromoides</i> .        |
| 11579. <i>Anatherum zizanioides</i> .   | 11706. <i>Cymbopogon citratus</i> .      |
| 11581. <i>Isachne arundinacea</i> .     | 11708. <i>Arthraxon quartinianus</i> .   |
| 11582. <i>Holcus halepensis</i> .       | 11709. <i>Bambos vulgaris</i> .          |
| 11583. <i>Isachne arundinacea</i> .     | 11713. <i>Leptochloa domingensis</i> .   |
| 11584. <i>Senites zeugites</i> .        | 11714. <i>Panicum adpersum</i> .         |
| 11585. <i>Isachne rigens</i> .          | 11715. <i>Eragrostis ciliaris</i> .      |
| 11587. <i>Lasiacis harrisii</i> .       | 11717. <i>Valota insularis</i> .         |
| 11591. <i>Festuca myurus</i> .          | 11718. <i>Leptochloa domingensis</i> .   |
| 11592. <i>Andropogon bicornis</i> .     | 11720. <i>Andropogon gracilis</i> .      |
| 11593. <i>Lithachne pauciflora</i> .    | 11734. <i>Eragrostis cubensis</i> .      |
| 11594. <i>Danthonia shrevei</i> .       | 11735. <i>Sporobolus indicus</i> .       |
| 11595. <i>Isachne rigens</i> .          | 11738. <i>Heteropogon contortus</i> .    |
| 11596. <i>Senites zeugites</i> .        | 11742. <i>Imperata brasiliensis</i> .    |
| 11597. <i>Panicum acuminatum</i> .      | 11743. <i>Chaetochloa geniculata</i> .   |
| 11598. <i>Sporobolus purpurascens</i> . | 11749. <i>Sacciolepis striata</i> .      |
| 11599. <i>Anthoxanthum odoratum</i> .   | 11750. <i>Panicum condensum</i> .        |
| 11600. <i>Andropogon bicornis</i> .     | 11751. <i>Echinochloa sabulicola</i> .   |
| 11601. <i>Leptochloa domingensis</i> .  | 11779. <i>Dactylis glomerata</i> .       |
| 11602. <i>Chaetochloa barbata</i> .     | 11781. <i>Andropogon saccharoides</i> .  |
| 11603. <i>Briza minor</i> .             | 11782. <i>Chaetochloa barbata</i> .      |
| 11604. <i>Festuca myurus</i> .          | 11783. <i>Panicum geminatum</i> .        |
| 11606. <i>Paspalum decumbens</i> .      | 11784. <i>Oplismenus hirtellus</i> .     |
| 11607. <i>Oplismenus hirtellus</i> .    | 11785. <i>Panicum adpersum</i> .         |
| 11609. <i>Sporobolus indicus</i> .      | 11786. <i>Pharus glaber</i> .            |
| 11610. <i>Heteropogon contortus</i> .   | 11787. <i>Oplismenus hirtellus</i> .     |
| 11611. <i>Sporobolus argutus</i> .      | 11788. <i>Homalocenchrus monandrus</i> . |
| 11612. <i>Echinochloa colonum</i> .     | 11789. <i>Panicum fasciculatum</i> .     |
| 11613. <i>Axonopus compressus</i> .     | 11800. <i>Panicum laxum</i> .            |
| 11614. <i>Syntherisma digitata</i> .    | 11805. <i>Hymenachne amplexicaulis</i> . |
| 11615. <i>Paspalum plicatulum</i> .     | 11806. <i>Echinochloa colonum</i> .      |
| 11616. <i>Paspalum paniculatum</i> .    | 11809. <i>Hymenachne amplexicaulis</i> . |
| 11617. <i>Chaetochloa geniculata</i> .  | 11812. <i>Paspalum repens</i> .          |
| 11618. <i>Eragrostis prolifera</i> .    | 11813. <i>Panicum elephantipes</i> .     |
| 11619. <i>Sporobolus indicus</i> .      | 11818. <i>Panicum fasciculatum</i> .     |
| 11620. <i>Paspalum millegrana</i> .     | 11819. <i>Syntherisma digitata</i> .     |
| 11621. <i>Briza maxima</i> .            | 11820. <i>Panicum fasciculatum</i> .     |
| 11622. <i>Uniola virgata</i> .          | 11824. <i>Echinochloa sabulicola</i> .   |
| 11629. <i>Danthonia shrevei</i> .       | 11832. <i>Lasiacis oaxacensis</i> .      |
| 11630. <i>Valota insularis</i> .        | 11836. <i>Panicum glutinosum</i> .       |
| 11635. <i>Sorghastrum parviflorum</i> . | 11837. <i>Ichnanthus pallens</i> .       |
| 11640. <i>Paspalum conjugatum</i> .     | 11841. <i>Stenotaphrum secundatum</i> .  |
| 11641. <i>Paspalum repens</i> .         | 11843. <i>Oplismenus setarius</i> .      |
| 11644. <i>Panicum laxum</i> .           | 11847. <i>Paspalum fimbriatum</i> .      |
| 11645. <i>Paspalum distichum</i> .      | 11848. <i>Panicum fasciculatum</i> .     |
| 11654. <i>Chloris polydactyla</i> .     | 11849. <i>Anthoxanthum odoratum</i> .    |
| 11655. <i>Andropogon saccharoides</i> . | 11850. <i>Paspalum distichum</i> .       |
| 11656. <i>Andropogon gracilis</i> .     |  |

11863. *Antheophora hermaphrodita*.  
 11909. *Eragrostis pilosa*.  
 11940. *Hymenachne amplexicaulis*.  
 12063. *Eragrostis pilosa*.  
 12065. *Chaetochloa onurus*.  
 12135. *Arundo donax*.  
 12146. *Panicum trichoides*.  
 12147. *Hackelochloa granularis*.  
 12161. *Panicum ghiesbreghtii*.  
 12163. *Scutachne dura*.  
 12211. *Chloris leptantha*.  
 12212. *Chloris leptantha*.  
 12213. *Andropogon saccharoides*.  
 12214. *Paspalum densum*.  
 12221. *Panicum parvifolium*.  
 12225. *Panicum polycaulon*.  
 12226. *Panicum cayennense*.  
 12227. *Panicum stenodes*.  
 12228. *Panicum chrysopsidifolium*.  
 12233. *Andropogon brevifolius*.  
 12234. *Panicum fusiforme*.  
 12235. *Panicum rudgei*.  
 12244. *Andropogon leucostachyus*.  
 12247. *Arundinella confinis*.  
 12254. *Panicum pilosum*.  
 12255. *Paspalum decumbens*.  
 12258. *Ichnanthus pallens*.  
 12282. *Paspalum conjugatum*.  
 12307. *Panicum geminatum*.  
 12309. *Leptochloa uninervia*.  
 12311. *Leptochloa uninervia*.  
 12317. *Paspalum caespitosum*.  
 12425. *Oryza sativa*.  
 12431. *Panicum glutinosum*.  
 12433. *Aristida refracta*.  
 12434. *Chloris sagraeana*.  
 12435. *Eragrostis eliottii*.  
 12437. *Eragrostis ciliaris*.  
 12440. *Aristida cognata*.  
 12441. *Eragrostis cubensis*.  
 12443. *Paspalum notatum*.  
 12447. *Leptochloa domingensis*.  
 12450. *Homalocenchrus hexandrus*.  
 12452. *Aristida adscensionis*.  
 12454. *Chusquea abietifolia*.  
 12455. *Anthoxanthum odoratum*.  
 12457. *Andropogon bicornis*.  
 12458. *Andropogon leucostachyus*.  
 12460. *Andropogon piptatherus*.  
 12461. *Themeda quadrivalvis*.  
 12462. *Chloris orthonotum*.  
 12463. *Sporobolus argutus*.  
 12464. *Chloris petraea*.

12465. *Andropogon glomeratus*.  
 12466. *Eragrostis prolifera*.  
 12467. *Sporobolus argutus*.  
 12468. *Sporobolus berterianus*.  
 12469. *Paspalum millegrana*.  
 12469a. *Paspalum secans*.  
 12470. *Hymenachne amplexicaulis*.  
 12472. *Ichnanthus pallens*.  
 12476. *Chloris leptantha*.  
 12477. *Chaetochloa setosa*.  
 12480. *Isachne rigens*.  
 12481. *Anthoxanthum odoratum*.  
 12482. *Bromus unioloides*.  
 12483. *Andropogon glomeratus*.  
 12484. *Syntherisma longiflora*.  
 12487. *Isachne arundinacea*.  
 12488. *Lasiacis sorghoidea*.  
 12489. *Isachne rigens*.  
 12490. *Isachne pygmaea*.  
 12491. *Isachne arundinacea*.  
 12546. *Festuca bromoides*.

HARRIS, W., AND BRITTON, N. L.

10590. *Arundo donax*.

HARSBERGER, J. W.

76. *Chloris paraguayensis*.

HART, J.

90. *Syntherisma digitata*.  
 350a. *Bambos vulgaris*.  
 559. *Bouteloua americana*.  
 560. *Chloris paraguayensis*.  
 566. *Bambos vulgaris*.  
 567. *Paspalum fimbriatum*.  
 570. *Andropogon saccharoides*.  
 574. *Valota insularis*.  
 576. *Cenchrus echinatus*.  
 578. *Oplismenus setarius*.  
 580. *Lasiacis divaricata*.  
 582. *Sporobolus indicus*.  
 677. *Paspalum paniculatum*.  
 678. *Syntherisma sanguinalis*.  
 679 (in part). *Eragrostis ciliaris*.  
 679 (in part). *Paspalum plicatum*.  
 680. *Chloris cruciata*.  
 681. *Festuca bromoides*.  
 682 (in part). *Andropogon glomeratus*.  
 682 (in part). *Andropogon bicornis*.  
 683. *Chaetochloa geniculata*.

684. *Chaetochloa geniculata*.  
 685. *Lasiacis sorghoidea*.  
 686. *Eleusine indica*.  
 687. *Paspalum fimbriatum*.  
 688. *Syntherisma longiflora*.  
 689. *Andropogon gracilis*.  
 692. *Andropogon virginicus*.  
 708. *Isachne arundinacea*.  
 726. *Panicum zizanioides*.  
 729. *Paspalum virgatum*.  
 730. *Olyra latifolia*.  
 732. *Panicum pilosum*.  
 734. *Andropogon virginicus*.  
 735. *Sporobolus purpurascens*.  
 736. *Panicum acuminatum*.  
 738. *Bromus sterilis*.  
 739. *Lolium multiflorum*.  
 740. *Chaetochloa lutescens*.  
 741. *Bromus unioloides*.  
 742. *Anthoxanthum odoratum*.  
 743. *Festuca elatior*.  
 744. *Dactylis glomerata*.  
 745. *Paspalum paniculatum*.  
 747. *Chaetochloa geniculata*.  
 748. *Notholcus lanatus*.  
 749. *Poa annua*.  
 750. *Festuca bromoides*.  
 751. *Briza minor*.  
 754. *Andropogon gracilis*.  
 755. *Paspalum conjugatum*.  
 756. *Syntherisma longiflora*.  
 774. *Sporobolus virginicus*.  
 779. *Leptochloa virgata*.  
 781. *Eragrostis ciliaris*.  
 783. *Cenchrus viridis*.  
 785. *Panicum fasciculatum*.  
 789. *Senites zeugites*.  
 792. *Panicum glutinosum*.  
 796. *Chaetochloa scandens*.  
 797. *Panicum maximum*.  
 800. *Gynerium sagittatum*.  
 806. *Panicum geminatum*.  
 809. *Manisuris exaltata*.  
 812. *Sorghastrum parviflorum*.  
 813. *Lasiacis sorghoidea*.  
 815. *Chaetochloa palmifolia*.  
 818. *Sporobolus indicus*.  
 825. *Echinochloa colonum*.  
 826. *Chaetochloa setosa*.  
 829. *Chaetochloa setosa*.  
 831. *Andropogon virginicus*.  
 833. *Axonopus compressus*.  
 837. *Leptochloa virgata*.

838. *Panicum reptans*.  
 840. *Panicum fasciculatum*.  
 841. *Chloris cruciata*.  
 860. *Paspalum vaginatum*.  
 864. *Aristida cognata*.  
 865. *Paspalum distichum*.  
 869. *Andropogon glomeratus*.  
 920. *Hymenachne amplexicaulis*.  
 923. *Ichnanthus nemorosus*.  
 927. *Agrostis alba*.  
 929. *Chloris polydactyla*.  
 1487. *Chaetochloa scandens*.  
 1493. *Avena fatua*.  
 1525. *Homalocenchrus monandrus*.  
 2003. *Gynerium sagittatum*.  
 2004. *Holcus halepensis*.  
 2076. *Anthephora hermaphrodita*.  
 2079. *Chloris petraea*.

## HELLER, A. A.

12. *Panicum acuminatum*.  
 92. *Ichnanthus pallens*.  
 100. *Panicum barbinode*.  
 101. *Eragrostis ciliaris*.  
 107. *Syntherisma sanguinalis*.  
 108. *Echinochloa colonum*.  
 110. *Eleusine indica*.  
 135. *Panicum fasciculatum*.  
 136. *Valota insularis*.  
 156. *Eragrostis ciliaris*.  
 157. *Panicum trichoides*.  
 164. *Paspalum glabrum*.  
 165. *Anthephora hermaphrodita*.  
 195. *Chloris radiata*.  
 196. *Chloris radiata*.  
 197. *Eragrostis tephrosanthos*.  
 229. *Cymbopogon citratus*.  
 329. *Chaetochloa geniculata*.  
 343. *Lasiacis divaricata*.  
 377. *Panicum maximum*.  
 380. *Eriochloa subglabra*.  
 387. *Panicum trichoides*.  
 422. *Syntherisma sanguinalis*.  
 497. *Panicum reptans*.  
 522. *Panicum laxum*.  
 524. *Paspalum portoricense*.  
 528. *Coix lachryma-jobi*.  
 531. *Panicum trichoides*.  
 584. *Eragrostis elliottii*.  
 597. *Andropogon bicornis*.  
 625. *Paspalum virgatum*.  
 639. *Panicum portoricense*.

649. *Eragrostis hypnoides*.  
 650. *Valota insularis*.  
 664. *Paspalum orbiculatum*.  
 826. *Ichnanthus pallens*.  
 913. *Bambos vulgaris*.  
 933. *Andropogon leucostachyus*.  
 934. *Arundinella confinis*.  
 982. *Panicum chrysopsidifolium*.  
 982b. *Panicum portoricense*.  
 984. *Andropogon leucostachyus*.  
 1275. *Sporobolus indicus*.  
 1317. *Chloris petraea*.  
 1341. *Stenotaphrum secundatum*.  
 1346. *Cenchrus echinatus*.  
 1348. *Antheophora hermaphrodita*.  
 1373. *Paspalum virgatum*.  
 1378. *Panicum laxum*.  
 1412. *Sporobolus virginicus*.  
 4355. *Arundinella confinis*.  
 4368. *Paspalum millegrana*.  
 4373. *Chaetochloa barbata*.  
 4374. *Ichnanthus pallens*.  
 4375. *Lasiacis sorghoidea*.  
 4396. *Andropogon leucostachyus*.  
 4397. *Paspalum conjugatum*.  
 4398. *Syntherisma digitata*.  
 4399. *Paspalum paniculatum*.  
 4401. *Ryttilix granularis*.  
 4409. *Echinochloa colonum*.  
 4410. *Eleusine indica*.  
 4411. *Dactyloctenium aegyptium*.  
 4417. *Chloris paraguayensis*.  
 4443. *Olyra latifolia*.  
 4479. *Ichnanthus axillaris*.  
 4488. *Chaetochloa barbata*.  
 4528. *Panicum fasciculatum*.  
 4535. *Leptochloa scabra*.  
 4583. *Olyra latifolia*.  
 4590. *Sporobolus cubensis*.  
 6057. *Bouteloua heterostega*.  
 6075. *Coix lachryma-jobi*.  
 6093. *Ichnanthus pallens*.  
 6094. *Panicum trichoides*.  
 6158. *Valota insularis*.  
 6198. *Eragrostis tephrosanthos*.  
 6218. *Eragrostis ciliaris*.  
 6219. *Paspalum fimbriatum*.  
 6226. *Panicum fasciculatum*.  
 6227. *Paspalum paniculatum*.  
 6230. *Andropogon brevifolius*.  
 6240. *Chaetochloa geniculata*.  
 6256. *Arundinella confinis*.  
 6289. *Phragmites phragmites*.

6293. *Panicum barbinode*.  
 6298. *Eriochloa punctata*.  
 6302. *Panicum fasciculatum*.  
 6303. *Oplismenus hirtellus*.  
 6354. *Paspalum decumbens*.  
 6380. *Chloris radiata*.  
 6404. *Eragrostis ciliaris*.  
 6422. *Chloris petraea*.  
 6442. *Panicum portoricense*.

Hess, W. E.

75. *Lasiacis sorghoidea*.  
 107. *Oryza latifolia*.  
 109. *Oryza latifolia*.  
 116. *Chusquea abietifolia*.  
 116½. *Arthrostylidium sarmentosum*.  
 117. *Holcus halepensis*.  
 118. *Cenchrus myosuroides*.  
 120. *Eragrostis tephrosanthos*.  
 121. *Capriola dactylon*.  
 122. *Eriochloa punctata*.  
 422. *Panicum utowanaeum*.  
 423. *Sporobolus virginicus*.  
 424. *Chaetochloa setosa*.  
 425. *Paspalum glabrum*.  
 426. *Chaetochloa setosa*.  
 427. *Pappophorum alopecuroideum*.  
 428. *Valota insularis*.  
 429. *Lasiacis divaricata*.  
 430. *Chloris paraguayensis*.  
 431. *Panicum utowanaeum*.  
 432. *Syntherisma digitata*.  
 433. *Valota insularis*.  
 434. *Paspalum glabrum*.  
 435. *Paspalum caespitosum*.  
 436. *Paspalum caespitosum*.  
 437. *Aristida adscensionis*.  
 438. *Eleusine indica*.  
 439. *Paspalum vaginatum*.  
 439½. *Sporobolus virginicus*.  
 440. *Cenchrus carolinianus*.  
 441. *Cenchrus echinatus*.  
 442. *Dactyloctenium aegyptium*.  
 443. *Cenchrus myosuroides*.  
 444. *Pappophorum alopecuroideum*.  
 445. *Sporobolus indicus*.  
 446. *Chloris petraea*.  
 447. *Chaetochloa setosa*.  
 448. *Chaetochloa geniculata*.  
 449. *Panicum maximum*.  
 450. *Panicum barbinode*.  
 451. *Eragrostis ciliaris*.

452. *Sporobolus argutus*.  
 453. *Sporobolus argutus*.  
 454. *Lasiacis divaricata*.  
 455. *Panicum utowanaeum*.  
 456. *Syntherisma digitata*.  
 457. *Panicum utowanaeum*.  
 1607. *Pappophorum alopecuroideum*.

## HIORAM, BROTHER.

5. *Leptochloa scabra*.  
 111. *Paspalum glabrum*.  
 134. *Eriochloa subglabra*.  
 214. *Andropogon leucostachyus*.  
 312. *Stenotaphrum secundatum*.  
 315. *Panicum adpersum*.  
 316. *Panicum fasciculatum*.  
 319. *Anatherum zizanioides*.  
 320. *Paspalum plicatulum*.  
 324 (in part). *Echinochloa sabulicola*.  
 324 (in part.) *Hymenachne amplexicaulis*.  
 325. *Leptochloa scabra*.  
 327. *Eriochloa subglabra*.  
 347. *Paspalum notatum*.  
 355. *Eragrostis ciliaris*.  
 357. *Panicum fasciculatum*.  
 358. *Paspalum fimbriatum*.  
 360. *Panicum barbinode*.  
 361. *Eriochloa punctata*.  
 362. *Ichnanthus pallens*.  
 367. *Paspalum melanospermum*.  
 368. *Panicum laxum*.  
 369. *Isachne angustifolia*.  
 804. *Paspalum glabrum*.  
 807. *Paspalum notatum*.  
 816. *Andropogon glomeratus*.  
 818. *Eriochrysis cayennensis*.  
 837. *Bouteloua heterostega*.  
 2717. *Paspalum glabrum*.

## HITCHCOCK, A. S.

144. *Panicum distantiflorum*.  
 145. *Panicum reptans*.  
 146. *Panicum reptans*.  
 147. *Panicum adpersum*.  
 148. *Panicum adpersum*.  
 149. *Panicum bartowense*.  
 150. *Panicum dichotomiflorum*.  
 151. *Panicum dichotomiflorum*.  
 152. *Panicum elephantipes*.  
 153. *Panicum virgatum cubense*.  
 154. *Panicum tenerum*.  
 155. *Panicum stenodes*.  
 156. *Panicum maximum*.  
 157. *Panicum maximum*.  
 158. *Lasiacis divaricata*.  
 159. *Panicum adpersum*.  
 176. *Lasiacis rugelii*.  
 177. *Panicum laxum*.  
 178. *Panicum laxum*.  
 179. *Panicum exiguum*.  
 180. *Panicum millegrana*.  
 181. *Panicum parvifolium*.  
 231. *Aristida refracta*.  
 232. *Aristida gyrans*.  
 233. *Aristida gyrans*.  
 234. *Sporobolus berterianus*.  
 235. *Sporobolus argutus*.  
 236. *Sporobolus argutus*.  
 237. *Sporobolus cubensis*.  
 238. *Chloris petraea*.  
 239. *Chloris cruciata*.  
 240. *Chloris cruciata*.  
 241. *Chloris sagraeana*.  
 242. *Chloris sagraeana*.  
 243. *Chloris sagraeana*.  
 244. *Chloris ciliata*.  
 245. *Chloris ciliata*.  
 246. *Chloris paraguayensis*.  
 247. *Chloris paraguayensis*.  
 248. *Chloris paraguayensis*.  
 249. *Chloris virgata*.  
 250. *Leptochloa filiformis*.  
 251. *Leptochloa fascicularis*.  
 252. *Leptochloa virgata*.  
 253. *Leptochloa virgata*.  
 254. *Pappophorum alopecuroideum*.  
 255. *Eragrostis amabilis*.  
 256. *Eragrostis ciliaris*.  
 257. *Eragrostis tephrosanthos*.  
 258. *Eragrostis tephrosanthos*.  
 259. *Eragrostis tephrosanthos*.  
 260. *Eragrostis eliottii*.  
 261. *Eragrostis cubensis*.

262. *Distichlis spicata*.  
 452. *Bouteloua heterostega*.  
 454. *Paspalum notatum*.  
 455. *Paspalum minus*.  
 456. *Paspalum plicatulum*.  
 457. *Paspalum plicatulum*.  
 458. *Paspalum poiiretii*.  
 459. *Paspalum poiiretii*.  
 461. *Paspalum poiiretii*.  
 462. *Paspalum nanum*.  
 463. *Paspalum lindenianum*.  
 464. *Paspalum caespitosum*.  
 465. *Paspalum caespitosum*.  
 466. *Paspalum caespitosum*.  
 467. *Paspalum caespitosum*.  
 468. *Paspalum virgatum*.  
 469. *Paspalum pulchellum*.  
 470. *Paspalum simpsoni*.  
 471. *Paspalum debile*.  
 472. *Paspalum multicaule*.  
 473. *Paspalum conjugatum*.  
 474. *Paspalum conjugatum*.  
 475. *Paspalum bakeri*.  
 476. *Manisuris loricata*.  
 477. *Paspalum secans*.  
 478. *Paspalum secans*.  
 479. *Andropogon malacostachyus*.  
 480. *Andropogon bicornis*.  
 481. *Andropogon nashianus*.  
 482. *Leptocoryphium lanatum*.  
 483. *Syntherisma leucomoma*.  
 484. *Syntherisma leucomoma*.  
 485. *Mesosetum loliiforme*.  
 486. *Axonopus compressus*.  
 487. *Hymenachne amplexicaulis*.  
 488. *Oplismenus hirtellus*.  
 489. *Oplismenus hirtellus*.  
 490. *Echinochloa colonum*.  
 491. *Chaetochloa verticillata*.  
 492. *Cenchrus carolinianus*.  
 493. *Cenchrus carolinianus*.  
 494. *Homalocenchrus hexandrus*.  
 495. *Reynaudia filiformis*.  
 496. *Aristida scabra*.  
 497. *Aristida scabra*.  
 498. *Aristida curtifolia*.  
 499. *Aristida refracta*.  
 500. *Aristida curtifolia*.  
 554. *Panicum leucothrix*.  
 555. *Panicum albomarginatum*.  
 560. *Panicum leucothrix*.  
 9251. *Cenchrus echinatus*.  
 9252. *Sporobolus iudicus*.  
 9253. *Leptochloa domingensis*.  
 9254. *Chloris paraguayensis*.  
 9255. *Valota insularis*.  
 9256. *Panicum maximum*.  
 9257. *Manisuris exaltata*.  
 9258. *Lasiacis sorghoidea*.  
 9259. *Panicum fasciculatum*.  
 9260. *Paspalum conjugatum*.  
 9261. *Axonopus compressus*.  
 9262. *Chloris radiata*.  
 9263. *Lithachne pauciflora*.  
 9264. *Lasiacis divaricata*.  
 9265. *Chaetochloa geniculata*.  
 9266. *Eleusine indica*.  
 9267. *Lasiacis sloanei*.  
 9268. *Lasiacis divaricata*.  
 9269. *Anthephora hermaphrodita*.  
 9270. *Chaetochloa barbata*.  
 9271. *Syntherisma digitata*.  
 9272. *Syntherisma sanguinalis*.  
 9273. *Dactyloctenium aegyptium*.  
 9274. *Paspalum fimbriatum*.  
 9276. *Chloris cruciata*.  
 9277. *Chaetochloa barbata*.  
 9278. *Panicum zizanioides*.  
 9279. *Eragrostis pilosa*.  
 9280. *Lasiacis sloanei*.  
 9281. *Panicum trichoides*.  
 9282. *Panicum adpersum*.  
 9284. *Axonopus compressus*.  
 9285. *Coix lachryma-jobi*.  
 9286. *Sporobolus berteroi*.  
 9287. *Paspalum distichum*.  
 9288. *Echinochloa colonum*.  
 9289. *Eragrostis ciliaris*.  
 9290. *Paspalum virgatum*.  
 9290½. *Paspalum plicatulum*.  
 9291. *Andropogon glomeratus*.  
 9292. *Bambos vulgaris*.  
 9293. *Arundo donax*.  
 9294. *Paspalum lindenianum*.  
 9295. *Paspalum simpsoni*.  
 9297. *Chloris petraea*.  
 9298. *Olyra latifolia*.  
 9299. *Chaetochloa geniculata*.  
 9300. *Cenchrus viridis*.  
 9301. *Gynerium sagittatum*.  
 9302. *Chloris polydactyla*.  
 9303. *Leptochloa virgata*.  
 9304. *Lasiacis divaricata*.  
 9305. *Lasiacis sloanei*.  
 9306. *Pharus glaber*.  
 9307. *Homalocenchrus monandrus*.



9308. *Chaetochloa barbata*.  
 9309. *Chloris ciliata*.  
 9310. *Leptochloa filiformis*.  
 9311. *Cenchrus echinatus*.  
 9312. *Panicum fasciculatum*.  
 9313. *Leptochloa virgata*.  
 9314. *Cenchrus viridis*.  
 9315. *Chaetochloa setosa*.  
 9316. *Chaetochloa setosa*.  
 9317. *Paspalum vaginatum*.  
 9318. *Sporobolus argutus*.  
 9319. *Paspalum plicatulum*.  
 9320. *Chaetochloa palmifolia*.  
 9321. *Panicum glutinosum*.  
 9322. *Chloris polydactyla*.  
 9323. *Panicum molle*.  
 9324. *Heteropogon contortus*.  
 9325. *Chaetochloa setosa*.  
 9326. *Arundinella confinis*.  
 9327. *Sporobolus indicus*.  
 9328. *Syntherisma longiflora*.  
 9329. *Syntherisma sanguinalis*.  
 9330. *Paspalum plicatulum*.  
 9331. *Pharus glaber*.  
 9332. *Panicum trichoides*.  
 9333. *Panicum laxum*.  
 9334. *Paspalum paniculatum*.  
 9335. *Lasiacis sorghoidea*.  
 9336. *Andropogon bicornis*.  
 9337. *Oplismenus setarius*.  
 9338. *Andropogon virginicus*.  
 9339. *Panicum barbinode*.  
 9340. *Sporobolus purpurascens*.  
 9341. *Andropogon brevifolius*.  
 9342. *Andropogon gracilis*.  
 9343. *Andropogon tener*.  
 9344. *Sporobolus berterianus*.  
 9345. *Andropogon saccharoides*.  
 9346. *Sorghastrum parviflorum*.  
 9347. *Paspalum virgatum*.  
 9348. *Andropogon glomeratus*.  
 9349. *Holcus halepensis*.  
 9352. *Eragrostis pilosa*.  
 9353. *Festuca bromoides*.  
 9354. *Syntherisma longiflora*.  
 9356. *Briza minor*.  
 9357. *Poa annua*.  
 9358. *Oplismenus setarius*.  
 9359. *Paspalum paniculatum*.  
 9360. *Senites zeugites*.  
 9361. *Andropogon virginicus*.  
 9362. *Isachne rigens*.  
 9363. *Lasiacis harrisii*.  
 9364. *Sporobolus berterianus*.  
 9365. *Chusquea abietifolia*.  
 9368. *Agrostis alba*.  
 9369. *Avena sativa*.  
 9370. *Panicum glutinosum*.  
 9371. *Poa compressa*.  
 9374. *Phleum pratense*.  
 9375. *Chusquea abietifolia*.  
 9376. *Chloris cruciata*.  
 9377. *Andropogon saccharoides*.  
 9378. *Syntherisma sanguinalis*.  
 9379. *Cenchrus echinatus*.  
 9380. *Lasiacis sorghoidea*.  
 9381. *Lasiacis sorghoidea*.  
 9382. *Lasiacis sorghoidea*.  
 9383. *Arundinella confinis*.  
 9384. *Andropogon gracilis*.  
 9385. *Andropogon virginicus*.  
 9386. *Isachne arundinacea*.  
 9388. *Oplismenus setarius*.  
 9389. *Paspalum distichum*.  
 9390. *Axonopus compressus*.  
 9391. *Chaetochloa barbata*.  
 9392. *Paspalum plicatulum*.  
 9393. *Syntherisma sanguinalis*.  
 9394. *Paspalum distichum*.  
 9395. *Paspalum notatum*.  
 9396. *Syntherisma longiflora*.  
 9397. *Panicum laxum*.  
 9398. *Panicum zizanioides*.  
 9399. *Chaetochloa geniculata*.  
 9400. *Paspalum virgatum*.  
 9402. *Lithacine pauciflora*.  
 9403. *Eragrostis pilosa*.  
 9404. *Rytidix granularis*.  
 9405. *Paspalum virgatum*.  
 9406. *Andropogon glomeratus*.  
 9407. *Panicum pilosum*.  
 9408. *Chaetochloa scandens*.  
 9409. *Lasiacis sorghoidea*.  
 9410. *Olyra latifolia*.  
 9411. *Panicum fasciculatum*.  
 9412. *Chaetochloa barbata*.  
 9413. *Lasiacis sloanei*.  
 9414. *Leptochloa virgata*.  
 9415. *Oplismenus setarius*.  
 9416. *Paspalum paniculatum*.  
 9417. *Paspalum simpsoni*.  
 9418. *Eragrostis tephrosanthos*.  
 9419. *Panicum zizanioides*.  
 9419½. *Eragrostis ciliaris*.  
 9420. *Lasiacis divaricata*.  
 9421. *Syntherisma sanguinalis*.

9422. *Paspalum fimbriatum*.  
 9423. *Panicum pilosum*.  
 9424. *Lithachne pauciflora*.  
 9425. *Sporobolus indicus*.  
 9426. *Lasiacis divaricata*.  
 9427. *Lasiacis divaricata*.  
 9428. *Chloris cruciata*.  
 9429. *Syntherisma sanguinalis*.  
 9430. *Chloris ciliata*.  
 9431. *Chaetochloa geniculata*.  
 9432. *Eleusine indica*.  
 9433. *Paspalum conjugatum*.  
 9434. *Cenchrus echinatus*.  
 9435. *Anatherum zizanioides*.  
 9436. *Axonopus compressus*.  
 9437. *Chloris radiata*.  
 9438. *Paspalum lindenianum*.  
 9438½. *Paspalum filiforme*.  
 9439. *Paspalum fimbriatum*.  
 9440. *Cenchrus viridis*.  
 9441. *Valota insularis*.  
 9442. *Paspalum poiretii*.  
 9443. *Paspalum plicatum*.  
 9444. *Stenotaphrum secundatum*.  
 9445. *Paspalum virgatum*.  
 9446. *Andropogon glomeratus*.  
 9447. *Chloris paraguayensis*.  
 9448. *Andropogon bicornis*.  
 9449. *Lasiacis divaricata*.  
 9450. *Paspalum notatum*.  
 9451. *Panicum glutinosum*.  
 9452. *Sporobolus berterianus*.  
 9453. *Chloris petraea*.  
 9454. *Paspalum distichum*.  
 9455. *Leptochloa domingensis*.  
 9456. *Paspalum virgatum*.  
 9457. *Paspalum secans*.  
 9458. *Chloris sagraeana*.  
 9459. *Chloris polydactyla*.  
 9460. *Andropogon virginicus*.  
 9461. *Panicum laxum*.  
 9462. *Manisuris exaltata*.  
 9463. *Panicum diffusum*.  
 9464. *Paspalum simpsoni*.  
 9466. *Homalocenchrus monandrus*.  
 9467. *Pharus glaber*.  
 9468. *Oplismenus setarius*.  
 9469. *Chloris cruciata*.  
 9470. *Paspalum simpsoni*.  
 9471. *Paspalum notatum*.  
 9472. *Andropogon pertusus*.  
 9473. *Chaetochloa barbata*.  
 9475. *Panicum trichoides*.  
 9476. *Paspalum simpsoni*.  
 9477. *Chloris radiata*.  
 9478. *Sporobolus indica*.  
 9479. *Sporobolus berterianus*.  
 9480. *Paspalum simpsoni*.  
 9481. *Andropogon virginicus*.  
 9483. *Paspalum fimbriatum*.  
 9484. *Stenotaphrum secundatum*.  
 9485. *Chloris petraea*.  
 9486. *Andropogon glomeratus*.  
 9487. *Syntherisma sanguinalis*.  
 9489. *Syntherisma digitata*.  
 9490. *Chaetochloa geniculata*.  
 9491. *Chaetochloa geniculata*.  
 9492. *Andropogon bicornis*.  
 9493. *Eragrostis ciliaris*.  
 9494. *Paspalum paniculatum*.  
 9495. *Paspalum notatum*.  
 9513. *Panicum zizanioides*.  
 9514. *Cenchrus echinatus*.  
 9515. *Chaetochloa barbata*.  
 9516. *Paspalum poiretii*.  
 9517. *Panicum pilosum*.  
 9518. *Paspalum filiforme*.  
 9519. *Lasiacis divaricata*.  
 9520. *Paspalum propinquum*.  
 9521. *Oplismenus setarius*.  
 9522. *Lithachne pauciflora*.  
 9523. *Ichnanthus nemorosus*.  
 9524. *Paspalum plicatum*.  
 9525. *Sporobolus purpurascens*.  
 9526. *Chaetochloa geniculata*.  
 9528. *Panicum rudgel*.  
 9529. *Paspalum virgatum*.  
 9530. *Panicum roanokense*.  
 9531. *Ichnanthus pallens*.  
 9532. *Panicum multirameum*.  
 9533. *Paspalum poiretii*.  
 9536. *Paspalum secans*.  
 9537. *Capriola dactylon*.  
 9538. *Panicum acuminatum*.  
 9539. *Panicum laxum*.  
 9540. *Paspalum notatum*.  
 9540½. *Paspalum minus*.  
 9541. *Eragrostis tephrosanthos*.  
 9542. *Andropogon virginicus*.  
 9543. *Andropogon brevifolius*.  
 9544. *Paspalum filiforme*.  
 9545. *Panicum laxum*.  
 9546. *Andropogon leucostachyus*.  
 9547. *Andropogon bicornis*.  
 9548. *Panicum pilosum*.  
 9549. *Paspalum plicatum*.

9550. *Panicum polycaulon*.  
 9551. *Panicum strigosum*.  
 9552. *Panicum fusiforme*.  
 9553. *Paspalum decumbens*.  
 9554. *Syntherisma sanguinalis*.  
 9555. *Paspalum virgatum*.  
 9556. *Paspalum densum*.  
 9557. *Paspalum millegrana*.  
 9558. *Panicum fasciculatum*.  
 9559. *Eragrostis pilosa*.  
 9560. *Eragrostis amabilis*.  
 9561. *Panicum polycaulon*.  
 9562. *Paspalum decumbens*.  
 9563. *Leptochloa domingensis*.  
 9564. *Panicum acuminatum*.  
 9565. *Andropogon piptatherus*.  
 9566. *Cymbopogon nardus*.  
 9567. *Manisuris exaltata*.  
 9568. *Oplismenus setarius*.  
 9569. *Lasiacis sorghoidea*.  
 9570. *Lasiacis sorghoidea*.  
 9571. *Lasiacis sorghoidea*.  
 9572. *Andropogon fastigiatus*.  
 9573. *Sporobolus purpurascens*.  
 9574. *Syntherisma panicea*.  
 9575. *Andropogon tener*.  
 9576. *Andropogon gracilis*.  
 9577. *Andropogon leucostachyus*.  
 9579. *Panicum geminatum*.  
 9580. *Panicum barbinode*.  
 9581. *Stenotaphrum secundatum*.  
 9582. *Paspalum repens*.  
 9583. *Sporobolus berterioanus*.  
 9584. *Homalocenchrus hexandrus*.  
 9585. *Hymenachne amplexicaulis*.  
 9587. *Dactyloctenium aegyptium*.  
 9588. *Cenchrus viridis*.  
 9589. *Chloris paraguayensis*.  
 9590. *Syntherisma digitata*.  
 9591. *Chloris petraea*.  
 9592. *Chloris ciliata*.  
 9593. *Paspalum distichum*.  
 9594. *Echinochloa colonum*.  
 9595. *Eragrostis pilosa*.  
 9595½. *Eragrostis tephrosanthos*.  
 9597. *Chloris cruciata*.  
 9598. *Paspalum propinquum*.  
 9599½. *Paspalum simpsoni*.  
 9600. *Chloris radiata*.  
 9601. *Paspalum plicatulum*.  
 9602. *Paspalum paniculatum*.  
 9603. *Paspalum virgatum*.  
 9604. *Chaetochloa barbata*.  
 9605. *Manisuris exaltata*.  
 9606. *Lasiacis sloanei*.  
 9607. *Gyncrium sagittatum*.  
 9608. *Lasiacis oaxacensis*.  
 9609. *Panicum zizanioides*.  
 9610. *Syntherisma sanguinalis*.  
 9611. *Cenchrus echinatus*.  
 9612. *Chaetochloa geniculata*.  
 9613. *Lithachne pauciflora*.  
 9614. *Eragrostis ciliaris*.  
 9615. *Andropogon brevifolius*.  
 9616. *Andropogon gracilis*.  
 9617. *Leptochloa virgata*.  
 9618. *Sporobolus indicus*.  
 9619. *Ichnanthus pallens*.  
 9620. *Andropogon glomeratus*.  
 9621. *Oplismenus setarius*.  
 9622. *Chloris polydactyla*.  
 9623. *Olyra latifolia*.  
 9624. *Paspalum simpsoni*.  
 9625. *Paspalum fimbriatum*.  
 9626. *Panicum pilosum*.  
 9627. *Panicum glutinosum*.  
 9628. *Lasiacis divaricata*.  
 9629. *Paspalum conjugatum*.  
 9630. *Panicum adspersum*.  
 9631. *Panicum reptans*.  
 9632. *Leptochloa virgata*.  
 9634. *Eragrostis tephrosanthos*.  
 9635. *Eragrostis pilosa*.  
 9636. *Syntherisma sanguinalis*.  
 9637. *Cenchrus carolinianus*.  
 9638. *Spartina patens juncea*.  
 9639. *Sporobolus virginicus*.  
 9640. *Sporobolus argutus*.  
 9641. *Paspalum vaginatum*.  
 9642. *Paspalum distachyon*.  
 9643. *Leptochloa fascicularis*.  
 9644. *Paspalum secans*.  
 9646. *Chaetochloa magna*.  
 9647. *Andropogon glomeratus*.  
 9648. *Phragmites phragmites*.  
 9649. *Paspalum secans*.  
 9650. *Echinochloa sabulicola*.  
 9653. *Panicum geminatum*.  
 9654. *Paspalum propinquum*.  
 9655. *Paspalum virgatum*.  
 9656. *Eragrostis tephrosanthos*.  
 9656½. *Andropogon virginicus*.  
 9657. *Paspalum densum*.  
 9658. *Panicum laxum*.  
 9659. *Hymenachne amplexicaulis*.  
 9660. *Oplismenus hirtellus*.

9662. *Bouteloua americana*.  
 9663. *Paspalum lindenianum*.  
 9664. *Chloris paraguayensis*.  
 9665. *Eragrostis pilosa*.  
 9666. *Chloris radiata*.  
 9667. *Paspalum vaginatum*.  
 9668. *Paspalum simpsoni*.  
 9669. *Syntherisma sanguinalis*.  
 9670. *Paspalum secans*.  
 9671. *Chloris ciliata*.  
 9672. *Chloris petraea*.  
 9673. *Stenotaphrum secundatum*.  
 9674. *Paspalum glabrum*.  
 9675. *Valota insularis*.  
 9676. *Chloris polydactyla*.  
 9677. *Andropogon glomeratus*.  
 9678. *Paspalum distachyon*.  
 9679. *Eriochloa punctata*.  
 9680. *Andropogon virginicus*.  
 9681. *Oplismenus setarius*.  
 9682. *Panicum fasciculatum*.  
 9683. *Axonopus compressus*.  
 9684. *Panicum zizanioides*.  
 9685. *Sporobolus indicus*.  
 9686. *Dactyloctenium aegyptium*.  
 9687. *Lasiacis divaricata*.  
 9688. *Paspalum conjugatum*.  
 9689. *Panicum reptans*.  
 9690. *Capriola dactylon*.  
 9691. *Paspalum finbriatum*.  
 9692. *Antheophora hermaphrodita*.  
 9693. *Panicum barbinode*.  
 9694. *Chaetochloa barbata*.  
 9695. *Chloris sagraeana*.  
 9696. *Paspalum notatum*.  
 9697. *Panicum acuminatum*.  
 9698. *Anthoxanthum odoratum*.  
 9699. *Bromus unioloides*.  
 9700. *Pennisetum orientale triflorum*.  
 9701. *Festuca bromoides*.  
 9702. *Chaetochloa lutescens*.  
 9703. *Syntherisma longiflora*.  
 9704. *Andropogon virginicus*.  
 9705. *Syntherisma argyrostachya*.  
 9706. *Isachne rigens*.  
 9707. *Andropogon gracilis*.  
 9708. *Panicum glutinosum*.  
 9709. *Senites zeugites*.  
 9710. *Briza minor*.  
 9711. *Paspalum notatum*.  
 9712. *Poa annua*.  
 9713. *Briza maxima*.  
 9714. *Bromus sterilis*.  
 9715. *Chusquea abietifolia*.  
 9716. *Sporobolus purpurascens*.  
 9717. *Bambos nana*.  
 9718. *Chaetochloa scandens*.  
 9719. *Chaetochloa palmifolia*.  
 9720. *Danthonia shrevei*.  
 9721. *Sporobolus berterianus*.  
 9722. *Panicum acuminatum*.  
 9723. *Chaetochloa scandens*.  
 9724. *Syntherisma sanguinalis*.  
 9725. *Pennisetum orientale triflorum*.  
 9726. *Lasiacis harrisii*.  
 9727. *Chaetochloa palmifolia*.  
 9728. *Isachne arundinacea*.  
 9729. *Lasiacis sorghoidea*.  
 9730. *Lasiacis harrisii*.  
 9731. *Oplismenus setarius*.  
 9732. *Isachne rigens*.  
 9733. *Senites zeugites*.  
 9734. *Chusquea abietifolia*.  
 9736. *Sporobolus purpurascens*.  
 9737. *Oplismenus setarius*.  
 9738. *Panicum acuminatum*.  
 9739. *Briza minor*.  
 9740. *Poa annua*.  
 9741. *Ichnanthus nemorosus*.  
 9742. *Isachne pygmaea*.  
 9743. *Bouteloua americana*.  
 9744. *Bouteloua americana*.  
 9745. *Chaetochloa setosa*.  
 9746. *Sporobolus virginicus*.  
 9747. *Panicum fasciculatum*.  
 9748. *Oplismenus hirtellus*.  
 9749. *Homalocenchrus monandrus*.  
 9750. *Panicum adspersum*.  
 9751. *Pharus glaber*.  
 9752. *Panicum geminatum*.  
 9752½. *Sporobolus virginicus*.  
 9755. *Nazia aliena*.  
 9756. *Heteropogon contortus*.  
 9757. *Chloris ciliata*.  
 9758. *Panicum molle*.  
 9759. *Sporobolus virginicus*.  
 9760. *Sporobolus argutus*.  
 9761. *Uniola virgata*.  
 9762. *Chaetochloa palmifolia*.  
 9763. *Andropogon glomeratus*.  
 9764. *Chloris paraguayensis*.  
 9765. *Paspalum poiretii*.  
 9766. *Paspalum simpsoni*.  
 9767. *Chloris petraea*.  
 9768. *Chaetochloa barbata*.  
 9769. *Eragrostis pilosa*.

9770. *Lithachne pauciflora*.  
 9771. *Chloris radiata*.  
 9772. *Sporobolus indicus*.  
 9773. *Paspalum fimbriatum*.  
 9774. *Syntherisma sanguinalis*.  
 9775. *Paspalum vaginatum*.  
 9776. *Paspalum millegrana*.  
 9777. *Stenotaphrum secundatum*.  
 9778. *Leptochloa virgata*.  
 9779. *Panicum zizanioides*.  
 9780. *Gynerium sagittatum*.  
 9781. *Panicum zizanioides*.  
 9782. *Panicum pilosum*.  
 9783. *Oplismenus setarius*.  
 9784. *Paspalum notatum*.  
 9785. *Panicum glutinosum*.  
 9786. *Panicum laxum*.  
 9787. *Chloris radiata*.  
 9788. *Paspalum plicatulum*.  
 9789. *Paspalum filiforme*.  
 9790. *Paspalum paniculatum*.  
 9791. *Paspalum virgatum*.  
 9792. *Paspalum fimbriatum*.  
 9793. *Chaetochloa barbata*.  
 9794. *Oryza sativa*.  
 9795. *Paspalum serratum*.  
 9796. *Lasiacis sorghoidea*.  
 9797. *Paspalum conjugatum*.  
 9798. *Ichnanthus nemorosus*.  
 9799. *Ichnanthus pallens*.  
 9800. *Lasiacis oaxacensis*.  
 9801. *Lasiacis sloanei*.  
 9802. *Lasiacis divaricata*.  
 9803. *Andropogon bicornis*.  
 9804. *Imperata contracta*.  
 9805. *Themeda arguens*.  
 9806. *Andropogon glomeratus*.  
 9807. *Stenotaphrum secundatum*.  
 9808. *Lasiacis sorghoidea*.  
 9809. *Paspalum leptocaulon*.  
 9810. *Chloris sagraeana*.  
 9811. *Leptochloa virgata*.  
 9812. *Chaetochloa scandens*.  
 9813. *Lasiacis sorghoidea*.  
 9814. *Arundinella confinis*.  
 9815. *Lithachne pauciflora*.  
 9816. *Paspalum simpsoni*.  
 9817. *Lasiacis sorghoidea*.  
 9818. *Sporobolus indicus*.  
 9819. *Eragrostis tephrosanthos*.  
 9820. *Chloris cruciata*.  
 9821. *Paspalum notatum*.  
 9822. *Homalocenchrus monandrus*.  
 9823. *Chloris sagraeana*.  
 9824. *Bouteloua americana*.  
 9825. *Sporobolus indicus*.  
 9826. *Chloris paraguayensis*.  
 9827. *Syntherisma digitata*.  
 9828. *Cenchrus echinatus*.  
 9829. *Chloris ciliata*.  
 9830. *Panicum adspersum*.  
 9831. *Nazia aliena*.  
 9833. *Paspalum simpsoni*.  
 9834. *Chaetochloa barbata*.  
 9835. *Syntherisma sanguinalis*.  
 9836. *Leptochloa domingensis*.  
 9837. *Lasiacis sorghoidea*.  
 9838. *Lasiacis divaricata*.  
 9839. *Heteropogon contortus*.  
 9840. *Paspalum fimbriatum*.  
 9841. *Cenchrus viridis*.  
 9842. *Chloris polydactyla*.  
 9843. *Paspalum plicatulum*.  
 9844. *Andropogon gracilis*.  
 9845. *Aristida cognata*.  
 9846. *Chaetochloa setosa*.  
 9847. *Chloris sagraeana*.  
 9848. *Andropogon saccharoides*.  
 9849. *Chaetochloa geniculata*.  
 9851. *Cenchrus gracillimus*.  
 9852. *Eragrostis cubensis*.  
 9853. *Aristida refracta*.  
 9854. *Eragrostis elliottii*.  
 9856. *Chloris ciliata*.  
 9857. *Sporobolus argutus*.  
 9858. *Ischaemum rugosum*.  
 9859. *Eriochloa subglabra*.  
 9860. *Bouteloua americana*.  
 9861. *Hymenachne amplexicaulis*.  
 9862. *Echinochloa sabulicola*.  
 9863. *Leptochloa fascicularis*.  
 9864. *Paspalum distachyon*.  
 9865. *Chloris polydactyla*.  
 9866. *Paspalum vaginatum*.  
 9867. *Echinochloa colonum*.  
 9868. *Echinochloa spectabilis*.  
 9869. *Paspalum millegrana*.  
 9870. *Panicum fasciculatum*.  
 9871. *Oplismenus setarius*.  
 9872. *Lithachne pauciflora*.  
 9873. *Paspalum lindenianum*.  
 9874. *Paspalum simpsoni*.  
 9875. *Eleusine indica*.  
 9876. *Stenotaphrum secundatum*.  
 9877. *Panicum geminatum*.  
 9878. *Panicum elephantipes*.

9879. *Leptochloa virgata*.  
 9880. *Eragrostis pilosa*.  
 9881. *Lasiacis divaricata*.  
 9882. *Syntherisma digitata*.  
 9883. *Chloris petraea*.  
 9884. *Panicum condensum*.  
 9885. *Paspalum leptocaulon*.  
 9886. *Eragrostis pilosa*.  
 9887. *Eragrostis pilosa*.  
 9888. *Eragrostis pilosa*.  
 9889. *Eragrostis tephrosanthos*.  
 9890. *Chloris sagraeana*.  
 9891. *Chaetochloa onurus*.  
 9892. *Lasiacis sorghoidea*.  
 9893. *Lasiacis sorghoidea*.  
 9941. *Panicum barbinode*.  
 9942. *Eragrostis ciliaris*.  
 9943. *Panicum trichanthum*.  
 9944. *Manisuris exaltata*.  
 9945. *Leptochloa virgata*.  
 9946. *Panicum trichoides*.  
 9947. *Syntherisma digitata*.  
 9948. *Syntherisma digitata*.  
 9949. *Chloris radiata*.  
 9950. *Axonopus compressus*.  
 9950½. *Lasiacis sorghoidea*.  
 9951. *Eriochloa subglabra*.  
 9952. *Paspalum conjugatum*.  
 9953. *Panicum polygonatum*.  
 9954. *Valota laxa*.  
 9955. *Ichnanthus pallens*.  
 9956. *Eleusine indica*.  
 9957. *Paspalum nutans*.  
 9957½. *Paspalum decumbens*.  
 9958. *Panicum zizanioides*.  
 9959. *Andropogon bicornis*.  
 9960. *Paspalum paniculatum*.  
 9961. *Panicum pilosum*.  
 9962. *Lasiacis ligulata*.  
 9963. *Lasiacis sorghoidea*.  
 9964. *Oplismenus hirtellus*.  
 9965. *Chaetochloa barbata*.  
 9966. *Ichnanthus pallens*.  
 9967. *Ichnanthus pallens*.  
 9968. *Olyra latifolia*.  
 9969. *Orthocladia laxa*.  
 9970. *Eriochloa subglabra*.  
 9971. *Eragrostis amabilis*.  
 9972. *Eragrostis amabilis*.  
 9973. *Sporobolus berterianus*.  
 9974. *Eragrostis tephrosanthos*.  
 9975. *Dactyloctenium aegyptium*.  
 9976. *Panicum fasciculatum*.  
 9977. *Lasiacis ruscifolia*.  
 9978. *Chaetochloa sulcata*.  
 9978½. *Syntherisma digitata*.  
 9979. *Panicum millegrana*.  
 9980. *Lasiacis sorghoidea*.  
 9981. *Olyra latifolia*.  
 9982. *Paspalum nutans*.  
 9983. *Paspalum plicatulum*.  
 9984. *Panicum laxum*.  
 9985. *Anatherum zizanioides*.  
 9986. *Bambos vulgaris*.  
 9987. *Paspalum pilosum*.  
 9988. *Axonopus equitans*.  
 9989. *Oplismenus hirtellus*.  
 9990. *Lasiacis patentiflora*.  
 9991. *Chaetochloa impressa*.  
 9992. *Valota insularis*.  
 9993. *Paspalum paniculatum*.  
 9994. *Leptochloa domingensis*.  
 9995. *Cenchrus viridis*.  
 9996. *Cenchrus echinatus*.  
 9997. *Paspalum virgatum*.  
 9998. *Andropogon condensatus*.  
 9999. *Ichnanthus ichnodes*.  
 10000. *Chaetochloa impressa*.  
 10001. *Lasiacis ruscifolia*.  
 10002. *Chaetochloa tenacissima*.  
 10003. *Ichnanthus ichnodes*.  
 10004. *Ichnanthus pallens*.  
 10005. *Oplismenus hirtellus*.  
 10006. *Lasiacis sorghoidea*.  
 10007. *Lasiacis ligulata*.  
 10008. *Syntherisma longiflora*.  
 10009. *Syntherisma sanguinalis*.  
 10010. *Oplismenus hirtellus*.  
 10011. *Paspalum fimbriatum*.  
 10012. *Leptochloa scabra*.  
 10013. *Ichnanthus pallens*.  
 10014. *Panicum fasciculatum*.  
 10015. *Paspalum nutans*.  
 10016. *Paspalum orbiculatum*.  
 10017. *Tripsacum dactyloides*.  
 10018. *Chaetochloa geniculata*.  
 10019. *Eragrostis tephrosanthos*.  
 10020. *Lasiacis ligulata*.  
 10021. *Lasiacis ruscifolia*.  
 10022. *Panicum grande*.  
 10023. *Oryza latifolia*.  
 10024. *Eragrostis glomerata*.  
 10025. *Paspalum densum*.  
 10026. *Echinochloa colonum*.  
 10027. *Imperata contracta*.  
 10028. *Leptochloa virgata*.

10029. *Paspalum fasciculatum*.  
 10030. *Paspalum virgatum*.  
 10031. *Homalocenchrus hexandrus*.  
 10031½. *Eriochloa punctata*.  
 10032. *Hymenachne amplexicaulis*.  
 10033. *Ichnanthus axillaris*.  
 10034. *Lasiacis patentiflora*.  
 10035. *Lasiacis sorghoidea*.  
 10036. *Paspalum paniculatum*.  
 10037. *Lasiacis patentiflora*.  
 10038. *Andropogon condensatus*.  
 10039. *Andropogon bicornis*.  
 10040. *Paspalum decumbens*.  
 10041. *Ichnanthus nemorosus*.  
 10042. *Pharus latifolius*.  
 10043. *Chaetochloa sulcata*.  
 10044. *Panicum barbinode*.  
 10045. *Panicum pilosum*.  
 10046. *Pharus latifolius*.  
 10047. *Coix lachryma-jobi*.  
 10048. *Leptochloa virgata*.  
 10049. *Panicum maximum*.  
 10050. *Paspalum vaginatum*.  
 10051. *Sporobolus littoralis*.  
 10052. *Ichnanthus tenuis*.  
 10053. *Panicum altum*.  
 10054. *Gynerium sagittatum*.  
 10055. *Leptochloa domingensis*.  
 10056. *Cenchrus insularis*.  
 10057. *Cenchrus echinatus*.  
 10058. *Sporobolus indicus*.  
 10059. *Chaetochloa setosa*.  
 10060. *Leptochloa filiformis*.  
 10061. *Lasiacis sorghoidea*.  
 10062. *Lasiacis divaricata*.  
 10063. *Lasiacis ruscifolia*.  
 10064. *Lasiacis sorghoidea*.  
 10065. *Panicum parvifolium*.  
 10066. *Paspalum pulchellum*.  
 10067. *Panicum cyanescens*.  
 10068. *Panicum laxum*.  
 10069. *Panicum caricoides*.  
 10069½. *Panicum stenodes*.  
 10070. *Andropogon virgatus*.  
 10071. *Eriochloa subglabra*.  
 10072. *Andropogon leucostachyus*.  
 10073. *Paspalum virgatum*.  
 10074. *Axonopus compressus*.  
 10075. *Paspalum pilosum*.  
 10076. *Andropogon brevifolius*.  
 10077. *Panicum polygonatum*.  
 10078. *Axonopus compressus*.  
 10079. *Raddia nana*.  
 10081. *Thrasya paspaloides*.  
 10082. *Leptochloa longa*.  
 10084. *Valota laxa*.  
 10086. *Paspalum distichum*.  
 10087. *Panicum millegrana*.  
 10088. *Paspalum pilosum*.  
 10089. *Gynerium sagittatum*.  
 10090. *Paspalum plicatulum*.  
 10091. *Panicum laxum*.  
 10092. *Paspalum coryphaeum*.  
 10093. *Axonopus macrostachyus*.  
 10094. *Axonopus pellitus*.  
 10095. *Imperata brasiliensis*.  
 10096. *Antheophora hermaphrodita*.  
 10097. *Andropogon leucostachyus*.  
 10098. *Panicum laxum*.  
 10099. *Panicum aquaticum*.  
 10101. *Axonopus capillaris*.  
 10102. *Paspalum multicaule*.  
 10103. *Pharus latifolius*.  
 10104. *Ichnanthus pallens*.  
 10105. *Olyra latifolia*.  
 10106. *Leptochloa scabra*.  
 10107. *Paspalum coryphaeum*.  
 10108. *Paspalum vaginatum*.  
 10109. *Arundinella confinis*.  
 10110. *Eragrostis glomerata*.  
 10111. *Valota insularis*.  
 10112. *Paspalum plicatulum*.  
 10113. *Sporobolus littoralis*.  
 10114. *Capriola dactylon*.  
 10115. *Paspalum densum*.  
 10116. *Syntherisma digitata*.  
 10117. *Lasiacis ruscifolia*.  
 10118. *Paspalum virgatum*.  
 10119. *Imperata contracta*.  
 10120. *Lasiacis liguleta*.  
 10121. *Panicum pilosum*.  
 10122. *Streptogyne crinita*.  
 10123. *Oplismenus hirtellus*.  
 10124. *Pharus parvifolius*.  
 10125. *Ichnanthus axillaris*.  
 10126. *Oplismenus setarius*.  
 10127. *Raddia biformis*.  
 10128. *Orthoclada laxa*.  
 10129. *Ichnanthus axillaris*.  
 10130. *Ichnanthus pallens*.  
 10131. *Lasiacis sorghoidea*.  
 10133. *Olyra ciliatifolia*.  
 10134. *Paspalum saccharoides*.  
 10135. *Paspalum decumbens*.  
 10136. *Lasiacis ruscifolia*.  
 10137. *Leptochloa scabra*.

10138. *Valota insularis*.  
 10139. *Paspalum vaginatum*.  
 10140. *Ichnanthus pallens*.  
 10142. *Imperata contracta*.  
 10143. *Valota laxa*.  
 10144. *Oryza latifolia*.  
 10145. *Paspalum millegrana*.  
 10146. *Panicum trichanthum*.  
 10148. *Panicum grande*.  
 10149. *Panicum laxum*.  
 10150. *Chaetochloa sulcata*.  
 10151. *Lasiacis ligulata*.  
 10152. *Eragrostis tephrosanthos*.  
 10153. *Pennisetum setosum*.  
 10154. *Panicum altum*.  
 10155. *Cenchrus echinatus*.  
 10156. *Paspalum millegrana*.  
 10157. *Anthephora hermaphrodita*.  
 10158. *Panicum geminatum*.  
 10159. *Panicum altum*.  
 10160. *Andropogon bicornis*.  
 10161. *Sporobolus littoralis*.  
 10162. *Stenotaphrum secundatum*.  
 10163. *Sporobolus argutus*.  
 10164. *Sporobolus littoralis*.  
 10165. *Syntherisma sanguinalis*.  
 10166. *Paspalum orbiculatum*.  
 10167. *Eriochloa punctata*.  
 10168. *Holcus halepensis*.  
 10169. *Pennisetum orientale triflorum*.  
 10170. *Lasiacis sorghoidea*.  
 10171. *Chaetochloa sulcata*.  
 10172. *Cymbopogon nardus*.  
 10173. *Axonopus appendiculatus*.  
 10174. *Ichnanthus tenuis*.  
 10175. *Paspalum decumbens*.  
 10176. *Pennisetum setosum*.  
 10177. *Panicum hirtum*.  
 10178. *Ichnanthus ichnodes*.  
 10179. *Ichnanthus ichnodes*.  
 10180. *Chaetochloa impressa*.  
 10181. *Panicum rudgei*.  
 10182. *Arundinella confinis*.  
 10184. *Paspalum coryphaeum*.  
 10185. *Trachypogon plumosus*.  
 10186. *Paspalum coryphaeum*.  
 10187. *Thrasya robusta*.  
 10188. *Andropogon selleanus*.  
 10189. *Paspalum pilosum*.  
 10190. *Paspalum plicatulum*.  
 10191. *Ichnanthus ichnodes*.  
 10192. *Paspalum coryphaeum*.  
 10194. *Andropogon semiberbis*.  
 10195. *Olyra latifolia*.  
 10196. *Leptochloa domingensis*.  
 10197. *Oplismenus hirtellus*.  
 10198. *Oplismenus hirtellus*.  
 10199. *Ichnanthus tenuis*.  
 10200. *Paspalum nutans*.  
 10201. *Paspalum virgatum*.  
 10202. *Eragrostis ciliaris*.  
 10203. *Eragrostis pilosa*.  
 10204. *Panicum barbinode*.  
 10205. *Syntherisma sanguinalis*.  
 10206. *Andropogon condensatus*.  
 10207. *Andropogon bicornis*.  
 10208. *Panicum pilosum*.  
 10209. *Cenchrus echinatus*.  
 10210. *Syntherisma digitata*.  
 10211. *Echinochloa colonum*.  
 10212. *Panicum reptans*.  
 10213. *Paspalum plicatulum*.  
 10214. *Coix lachryma-jobi*.  
 10215. *Bouteloua americana*.  
 10216. *Panicum fasciculatum*.  
 10217. *Sporobolus littoralis*.  
 10218. *Stenotaphrum secundatum*.  
 10219. *Sporobolus berteroi*.  
 10220. *Andropogon pertusus panormitanus*.  
 10221. *Olyra latifolia*.  
 10222. *Oplismenus hirtellus*.  
 10223. *Leptochloa virgata*.  
 10224. *Gynerium sagittatum*.  
 10225. *Chaetochloa barbata*.  
 10226. *Capriola dactylon*.  
 10227. *Axonopus compressus*.  
 10228. *Paspalum conjugatum*.  
 10229. *Sporobolus indicus*.  
 10230. *Dactyloctenium aegyptium*.  
 10231. *Phragmites phragmites*.  
 10232. *Sporobolus littoralis*.  
 10233. *Panicum altum*.  
 10234. *Andropogon pertusus*.  
 10235. *Pennisetum setosum*.  
 10236. *Leptochloa virgata*.  
 10237. *Eleusine indica*.  
 10238. *Chloris radiata*.  
 10239. *Panicum maximum*.  
 10240. *Ichnanthus pallens*.  
 10241. *Oplismenus hirtellus*.  
 10242. *Panicum pilosum*.  
 10243. *Leptochloa filiformis*.  
 10244. *Syntherisma digitata*.  
 10245. *Panicum laxum*.  
 10246. *Valota laxa*.



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|--|--|
| <p>10247. <i>Lasiacis sorghoidea</i>.<br/> 10248. <i>Ichnanthus pallens</i>.<br/> 10249. <i>Paspalum paniculatum</i>.<br/> 10250. <i>Eriochloa punctata</i>.<br/> 10251. <i>Chaetochloa barbata</i>.<br/> 10252. <i>Oplismenus hirtellus</i>.<br/> 10253. <i>Valota insularis</i>.<br/> 10254. <i>Lasiacis divaricata</i>.<br/> 10255. <i>Lasiacis patentiflora</i>.<br/> 10256. <i>Lasiacis divaricata</i>.<br/> 10257. <i>Lasiacis patentiflora</i>.<br/> 10258. <i>Panicum zizanioides</i>.<br/> 10259. <i>Leptochloa scabra</i>.<br/> 10260. <i>Chaetochloa geniculata</i>.<br/> 10261. <i>Lasiacis ligulata</i>.<br/> 10262. <i>Lasiacis ligulata</i>.<br/> 10263. <i>Ichnanthus axillaris</i>.<br/> 10264. <i>Olyra latifolia</i>.<br/> 10265. <i>Panicum pilosum</i>.<br/> 10266. <i>Oplismenus hirtellus</i>.<br/> 10267. <i>Raddia urbaniana</i>.<br/> 10268. <i>Lasiacis patentiflora</i>.<br/> 10269. <i>Lasiacis ligulata</i>.<br/> 10270. <i>Lasiacis patentiflora</i>.<br/> 10271. <i>Oplismenus hirtellus</i>.<br/> 10272. <i>Panicum laxum</i>.<br/> 10273. <i>Imperata contracta</i>.<br/> 10274. <i>Andropogon bicornis</i>.<br/> 10275. <i>Lasiacis ligulata</i>.<br/> 10276. <i>Chaetochloa palmifolia</i>.<br/> 10277. <i>Arundinella confinis</i>.<br/> 10278. <i>Paspalum saccharoides</i>.<br/> 10279. <i>Isachne disperma</i>.<br/> 10281. <i>Paspalum fasciculatum</i>.<br/> 10282. <i>Chaetochloa sulcata</i>.<br/> 10283. <i>Paspalum distichum</i>.<br/> 10284. <i>Echinochloa spectabilis</i>.<br/> 10285. <i>Paspalum millegrana</i>.<br/> 10286. <i>Sporobolus berterianus</i>.<br/> 10287. <i>Paspalum vaginatum</i>.<br/> 10288. <i>Leptochloa filiformis</i>.<br/> 10289. <i>Eragrostis amabilis</i>.<br/> 10291. <i>Hymenachne amplexicaulis</i>.<br/> 10293. <i>Leptochloa scabra</i>.<br/> 10297. <i>Panicum polygonatum</i>.<br/> 10299. <i>Paspalum nutans</i>.<br/> 10301. <i>Paspalum nutans</i>.<br/> 10306. <i>Panicum polygonatum</i>.<br/> 10308. <i>Paspalum decumbens</i>.<br/> 10309. <i>Panicum pilosum</i>.<br/> 10310. <i>Panicum hirtum</i>.<br/> 10313. <i>Ichnanthus tenuis</i>.<br/> 10315. <i>Homalocenchrus hexandrus</i>.</p> | <p>10317. <i>Lasiacis sorghoidea</i>.<br/> 10319. <i>Eragrostis glomerata</i>.<br/> 10320. <i>Panicum hirtum</i>.<br/> 10323. <i>Lasiacis patentiflora</i>.<br/> 10324. <i>Lasiacis patentiflora</i>.<br/> 10326. <i>Olyra latifolia</i>.<br/> 10327. <i>Olyra latifolia</i>.<br/> 10328. <i>Syntherisma longiflora</i>.<br/> 10329. <i>Eragrostis tephrosanthos</i>.<br/> 10332. <i>Eriochloa subglabra</i>.<br/> 10335. <i>Thrasya paspaloides</i>.<br/> 10337. <i>Paspalum serpinifolium</i>.<br/> 10338. <i>Paspalum pulchellum</i>.<br/> 10339. <i>Axonopus aureus</i>.<br/> 10340. <i>Paspalum multicaule</i>.<br/> 10342. <i>Trachypogon plumosus</i>.<br/> 10343. <i>Panicum laxum</i>.<br/> 10344. <i>Eragrostis acutiflora</i>.<br/> 10345. <i>Andropogon leucostachyus</i>.<br/> 10346. <i>Panicum stenoides</i>.<br/> 10347. <i>Panicum stenoides</i>.<br/> 10348. <i>Andropogon virgatus</i>.<br/> 10349. <i>Panicum cyanescens</i>.<br/> 10350. <i>Paspalum pumilum</i>.<br/> 10351. <i>Panicum laxum</i>.<br/> 10352. <i>Thrasya robusta</i>.<br/> 10353. <i>Paspalum decumbens</i>.<br/> 10354. <i>Panicum cyanescens</i>.<br/> 10356. <i>Sacciolepis myuros</i>.<br/> 10357. <i>Ichnanthus ichnodes</i>.<br/> 10358. <i>Panicum pilosum</i>.<br/> 10361. <i>Panicum laxum</i>.<br/> 10362. <i>Isachne polygonoides</i>.<br/> 10363. <i>Panicum hirtum</i>.<br/> 10364. <i>Panicum cyanescens</i>.<br/> 10366. <i>Paspalum millegrana</i>.<br/> 10367. <i>Homalocenchrus hexandrus</i>.<br/> 10368. <i>Oplismenus hirtellus</i>.<br/> 10374. <i>Lasiacis sloanei</i>.<br/> 10375. <i>Anthephora hermaphrodita</i>.<br/> 10376. <i>Panicum grande</i>.<br/> 10377. <i>Leptochloa longa</i>.</p> |
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HOLM, T.

3. *Ichnanthus pallens*.  
26. *Lasiacis divaricata*.  
34. *Panicum laxum*.  
40. *Aristida portoricensis*.  
47. *Panicum aciculare*.  
56. *Eriochloa subglabra*.  
59. *Panicum polycaulon*.  
59b. *Panicum acuminatum*.

74. *Lasiacis sorghoidea*.
75. *Arundinella confinis*.
76. *Andropogon leucostachyus*.
82. *Andropogon fastigiatus*.
84. *Paspalum secans*.
85. *Ryttilix granularis*.
87. *Andropogon brevifolius*.
88. *Paspalum decumbens*.
91. *Paspalum fimbriatum*.
116. *Lasiacis sorghoidea*.
124. *Oplismenus setarius*.
129. *Panicum trichoides*.
130. *Panicum fasciculatum*.
163. *Sporobolus berterianus*.
165. *Ichnanthus pallens*.
171. *Axonopus compressus*.
173. *Paspalum notatum*.
174. *Panicum laxum*.
178. *Andropogon semiberbis*.
192. *Leptocoryphium lanatum*.
193. *Leptocoryphium lanatum*.
199. *Paspalum paniculatum*.

## IMRAY, J.

161. *Syntherisma digitata*.
311. *Paspalum saccharoides*.

## JOHNSTON, J. R.

10. *Eriochloa subglabra*.
126. *Sporobolus indicus*.
127. *Syntherisma digitata*.
143. *Panicum trichanthum*.
372. *Capriola dactylon*.
375. *Paspalum paniculatum*.
381. *Paspalum conjugatum*.
538. *Paspalum plicatulum*.
893. *Chaetochloa geniculata*.
972. *Valota insularis*.
1011. *Paspalum plicatulum*.
1027. *Chaetochloa setosa*.

## JONES, J.

1. *Melinis minutiflora*.
2. *Arundinella confinis*.
3. *Chaetochloa palmifolia*.
4. *Capriola dactylon*.
5. *Pennisetum setosum*.
6. *Chaetochloa geniculata*.

7. *Syntherisma digitata*.
8. *Andropogon condensatus*.
9. *Sporobolus indicus*.
10. *Panicum maximum*.
11. *Eleusine indica*.
12. *Syntherisma digitata*.
13. *Cenchrus echinatus*.
14. *Eleusine indica*.
15. *Chloris paraguayensis*.
16. *Paspalum conjugatum*.
17. *Ischaemum latifolium*.
18. *Eragrostis ciliaris*.
19. *Paspalum virgatum*.
20. *Panicum pilosum*.
21. *Panicum laxum*.
22. *Eleusine indica*.
23. *Eleusine indica*.
24. *Paspalum conjugatum*.
25. *Panicum laxum*.
26. *Chloris radiata*.
27. *Eleusine indica*.
31. *Panicum trichoides*.
32. *Echinochloa colonum*.
33. *Chloris paraguayensis*.
35. *Paspalum paniculatum*.
36. *Eriochloa punctata*.
37. *Oplismenus hirtellus*.
38. *Isachne disperma*.
39. *Paspalum pumilum*.
40. *Dactyloctenium aegyptium*.
41. *Ischaemum latifolium*.
42. *Panicum barbinode*.
43. *Chaetochloa barbata*.
44. *Eragrostis pilosa*.
45. *Axonopus compressus*.
46. *Bouteloua americana*.
47. *Paspalum glabrum*.
48. *Stenotaphrum secundatum*.
49. *Lasiacis sloanei*.
50. *Oplismenus hirtellus*.
51. *Andropogon brevifolius*.
61. *Leptochloa virgata*.
62. *Valota insularis*.
63. *Sporobolus indicus*.

LEÓN, BROTHER.<sup>1</sup>

117. *Paspalum notatum*.
188. *Cenchrus echinatus*.

<sup>1</sup> On some of Brother León's collections a second name is associated with his, that of Brother Charles, Brother Clément, Brother Hioram, or Brother Sergius, Father Roca, F. R. Cazañas, or Señor Boillot. Brother León has explained in a letter that these collections form a single series with his individual numbers; hence they are here listed under his name.

- 188½. *Cenchrus carolinianus*.  
 190. *Panicum diffusum*.  
 193. *Andropogon virginicus*.  
 209. *Trachypogon gouini*.  
 268. *Paspalum caespitosum*.  
 269. *Chaetochloa geniculata*.  
 271. *Holcus halepensis*.  
 272. *Paspalum denticulatum*.  
 273. *Dactyloctenium aegyptium*.  
 274. *Opizia stolonifera*.  
 275. *Sporobolus indicus*.  
 276 (in part). *Panicum reptans*.  
 276 (in part). *Eragrostis tephrosanthos*.  
 277. *Eragrostis amabilis*.  
 278. *Eleusine indica*.  
 279. *Syntherisma sanguinalis*.  
 280. *Aristida scabra*.  
 281. *Eragrostis ciliaris*.  
 282. *Sporobolus indicus*.  
 283. *Panicum barbinode*.  
 284. *Sporobolus virginicus*.  
 285. *Sporobolus argutus*.  
 286. *Paspalum poiretii*.  
 287. *Chloris sagraeana*.  
 288. *Opizia stolonifera*.  
 289. *Dactyloctenium aegyptium*.  
 290. *Capriola dactylon*.  
 291. *Panicum adspersum*.  
 292. *Panicum reptans*.  
 293. *Bouteloua heterostega*.  
 294. *Eleusine indica*.  
 295. *Eragrostis tephrosanthos*.  
 296. *Panicum repens*.  
 297. *Panicum reptans*.  
 298. *Axonopus compressus*.  
 299. *Bouteloua disticha*.  
 300. *Trachypogon gouini*.  
 301. *Syntherisma sanguinalis*.  
 302. *Paspalum conjugatum*.  
 303. *Echinochloa colonum*.  
 304. *Syntherisma sanguinalis*.  
 305 (in part). *Panicum diffusum*.  
 305 (in part). *Panicum distantiflorum*.  
 306. *Valota insularis*.  
 335. *Panicum elephantipes*.  
 424. *Holcus halepensis*.  
 425. *Echinochloa colonum*.  
 427. *Panicum maximum*.  
 428. *Chaetochloa geniculata*.  
 554. *Dactyloctenium aegyptium*.  
 555. *Chaetochloa verticillata*.  
 556. *Opilismenus hirtellus*.  
 557. *Panicum trichanthum*.  
 558. *Chloris radiata*.  
 559. *Hymenachne amplexicaulis*.  
 560. *Leptochloa virgata*.  
 561. *Holcus sorghum*.  
 562. *Andropogon gracilis*.  
 563. *Panicum repens*.  
 564. *Paspalum alterniflorum*.  
 565. *Andropogon glomeratus*.  
 566. *Panicum reptans*.  
 567. *Panicum distantiflorum*.  
 568. *Panicum barbinode*.  
 569. *Gynerium sagittatum*.  
 570. *Panicum adspersum*.  
 571. *Paspalum denticulatum*.  
 572. *Andropogon glomeratus*.  
 573. *Panicum fasciculatum*.  
 574. *Chloris ciliata*.  
 575. *Sporobolus indicus*.  
 576. *Panicum reptans*.  
 577. *Hymenachne amplexicaulis*.  
 578. *Paspalum virgatum*.  
 579. *Paspalum paniculatum*.  
 580. *Leptochloa filiformis*.  
 581. *Paspalum alterniflorum*.  
 583. *Olyra latifolia*.  
 584. *Lithachne pauciflora*.  
 585. *Paspalum alterniflorum*.  
 586. *Sporobolus berterianus*.  
 587. *Paspalum ciliiferum*.  
 588. *Paspalum denticulatum*.  
 743. *Leptochloa filiformis*.  
 747. *Echinochloa sabulicola*.  
 749. *Bouteloua disticha*.  
 752. *Echinochloa colonum*.  
 753. *Leptochloa fascicularis*.  
 755. *Anatherum zizanioides*.  
 759. *Paspalum racemosum*.  
 760. *Poa annua*.  
 766. *Lasiacis sloanei*.  
 767. *Lasiacis divaricata*.  
 768. *Paspalum caespitosum*.  
 769a. *Panicum geminatum*.  
 769b. *Panicum geminatum*.  
 774. *Holcus sorghum*.  
 775. *Arundo donax*.  
 779. *Paspalum ciliatifolium*.  
 780. *Bouteloua americana*.  
 781. *Paspalum plicatulum*.  
 782. *Paspalum conjugatum*.  
 807. *Eragrostis tephrosanthos*.  
 808. *Hymenachne auriculata*.

809. *Avicennia sativa*.  
 810. *Axonopus compressus*.  
 810b. *Axonopus compressus*.  
 811. *Paspalum vaginatum*.  
 813. *Panicum fasciculatum*.  
 814. *Syntherisma digitata*.  
 815. *Antheophora hermaphrodita*.  
 817. *Tricholaena rosea*.  
 818. *Eragrostis amabilis*.  
 820. *Andropogon gracilis*.  
 821. *Andropogon glomeratus*.  
 822. *Andropogon bicornis*.  
 823. *Andropogon glomeratus*.  
 824. *Andropogon virginicus*.  
 825. *Andropogon gracilis*.  
 826. *Andropogon gracilis*.  
 827. *Andropogon leucostachyus*.  
 828. *Chaetochloa onurus*.  
 829. *Chaetochloa setosa*.  
 830. *Chaetochloa setosa*.  
 831. *Chaetochloa setosa*.  
 832. *Chaetochloa geniculata*.  
 833. *Chaetochloa geniculata*.  
 834. *Chaetochloa geniculata*.  
 835. *Cenchrus myosuroides*.  
 836. *Cenchrus carolinianus*.  
 837. *Cenchrus viridis*.  
 838. *Cenchrus echinatus*.  
 839. *Syntherisma digitata*.  
 840. *Syntherisma sanguinalis*.  
 841. *Syntherisma digitata*.  
 842. *Syntherisma sanguinalis*.  
 843. *Syntherisma sanguinalis*.  
 843½. *Syntherisma sanguinalis*.  
 844. *Echinochloa colonum*.  
 845. *Bambos vulgaris*.  
 846. *Capriola dactylon*.  
 847. *Manisuris exaltata*.  
 848. *Reynaudia filiformis*.  
 849. *Leptochloa filiformis*.  
 850. *Eriochloa punctata*.  
 851. *Eriochloa filifolia*.  
 852. *Eriochloa ramosa*.  
 853. *Leptocoryphium lanatum*.  
 854. *Andropogon semiberbis*.  
 855. *Andropogon semiberbis*.  
 856. *Chloris sagraeana*.  
 856½. *Chloris cilata*.  
 857. *Chloris sagraeana*.  
 858. *Chloris virgata*.  
 859. *Chloris orthonotum*.  
 860. *Chloris orthonotum*.  
 861. *Bouteloua heterostega*.  
 862. *Leptochloa domingensis*.  
 863. *Leptochloa virgata*.  
 863b. *Leptochloa domingensis*.  
 864. *Leptochloa fascicularis*.  
 865. *Leptochloa domingensis*.  
 866. *Sporobolus indicus*.  
 867. *Sporobolus indicus*.  
 868. *Sporobolus argutus*.  
 869. *Sporobolus indicus*.  
 870. *Sporobolus indicus*.  
 871. *Aristida curtifolia*.  
 872. *Aristida curtifolia*.  
 873. *Aristida curtifolia*.  
 874. *Aristida curtifolia*.  
 875. *Aristida refracta*.  
 876. *Eragrostis tephrosanthos*.  
 876b. *Eragrostis tephrosanthos*.  
 877. *Eragrostis tephrosanthos*.  
 878. *Eragrostis tephrosanthos*.  
 879. *Eragrostis amabilis*.  
 880. *Eragrostis ciliaris laxa*.  
 882. *Eragrostis tephrosanthos*.  
 884. *Eragrostis tephrosanthos*.  
 885. *Eragrostis leonina*.  
 886. *Eragrostis cubensis*.  
 887. *Eragrostis tephrosanthos*.  
 888. *Eragrostis tephrosanthos*.  
 889. *Uniola paniculata*.  
 890. *Bouteloua americana*.  
 893. *Andropogon saccharoides*.  
 894. *Sorghastrum parviflorum*.  
 895. *Sorghastrum parviflorum*.  
 896. *Chloris cruciata*.  
 897. *Heteropogon contortus*.  
 898. *Syntherisma leucocoma*.  
 899. *Nazia aliena*.  
 900. *Arthrostylidium capillifolium*.  
 901. *Arthrostylidium capillifolium*.  
 902. *Panicum exigulflorum*.  
 903. *Panicum zizanioides*.  
 904. *Lasiacis divaricata*.  
 905. *Lasiacis ruscifolia*.  
 906. *Panicum reptans*.  
 907. *Panicum laxum*.  
 908. *Panicum pilosum*.  
 909. *Panicum boliviense*.  
 910. *Panicum reptans*.  
 910b. *Panicum reptans*.  
 910c. *Panicum reptans*.  
 911. *Panicum exigulflorum*.  
 912. *Panicum distantiflorum*.  
 913. *Panicum exigulflorum*.  
 914. *Panicum laxum*.

915. *Panicum maximum*.  
 916. *Panicum fasciculatum*.  
 917. *Panicum distantiflorum*.  
 918. *Panicum geminatum*.  
 919. *Panicum aquaticum*.  
 920. *Panicum geminatum*.  
 921. *Panicum maximum*.  
 922. *Panicum ghiesbreghtii*.  
 922b. *Panicum ghiesbreghtii*.  
 923. *Panicum diffusum*.  
 923b. *Panicum diffusum*.  
 923c. *Panicum diffusum*.  
 924. *Panicum adpersum*.  
 925. *Panicum adpersum*.  
 926. *Paspalum plicatum*.  
 927. *Paspalum plicatum*.  
 927b. *Paspalum plicatum*.  
 928. *Paspalum notatum*.  
 929. *Paspalum distichum*.  
 930. *Paspalum vaginatum*.  
 931. *Paspalum millegrana*.  
 931b. *Paspalum secans*.  
 932. *Paspalum secans*.  
 933. *Paspalum paniculatum*.  
 934. *Paspalum ciliiferum*.  
 935. *Paspalum caespitosum*.  
 935c. *Paspalum poiretii*.  
 936. *Paspalum caespitosum*.  
 937. *Paspalum denticulatum*.  
 938. *Paspalum conjugatum*.  
 938d. *Paspalum conjugatum*.  
 939b. *Paspalum conjugatum*.  
 940. *Paspalum distichum*.  
 941. *Paspalum distichum*.  
 942. *Paspalum clavuliferum*.  
 943. *Paspalum alterniflorum*.  
 944. *Paspalum lindenianum*.  
 945. *Paspalum alterniflorum*.  
 945b. *Paspalum lindenianum*.  
 946. *Paspalum filiforme*.  
 947. *Paspalum unispicatum*.  
 948. *Paspalum poiretii*.  
 949. *Paspalum leoninum*.  
 950. *Paspalum leoninum*.  
 951. *Paspalum glabrum*.  
 952. *Syntherisma panicea*.  
 953. *Paspalum caespitosum*.  
 954. *Paspalum simpsoni*.  
 955. *Andropogon saccharoides*.  
 956. *Paspalum bakeri*.  
 957. *Panicum maximum*.  
 958. *Aristida scabra*.  
 959. *Aristida scabra*.  
 960. *Syntherisma sanguinalis*.  
 961. *Chloris petraea*.  
 962. *Eragrostis prolifera*.  
 963. *Eragrostis prolifera*.  
 964. *Uniola paniculata*.  
 1509. *Leptochloa fascicularis*.  
 1510. *Homalocenchrus hexandrus*.  
 1511. *Paspalum ciliiferum*.  
 1513. *Syntherisma sanguinalis*.  
 1514. *Syntherisma sanguinalis*.  
 1522. *Sporobolus berterianus*.  
 1523. *Arundo donax*.  
 1527. *Paspalum poiretii*.  
 1528. *Sporobolus berterianus*.  
 1529. *Andropogon malacostachyus*.  
 1581. *Anatherum zizanioides*.  
 1582. *Imperata brasiliensis*.  
 1583. *Lolium temulentum arvense*.  
 1956. *Andropogon malacostachyus*.  
 1964. *Chaetochloa geniculata*.  
 1965. *Chloris sagræana*.  
 1969. *Lasiacis sloanei*.  
 1970. *Lasiacis divaricata*.  
 1971. *Lasiacis divaricata*.  
 1972. *Lasiacis grisebachii*.  
 1973. *Lasiacis sloanei*.  
 1974. *Panicum aquaticum*.  
 1975. *Panicum aquaticum*.  
 1975½. *Panicum dichotomiflorum*.  
 1976. *Panicum aquaticum*.  
 1977. *Panicum pilosum*.  
 1978. *Panicum adpersum*.  
 1979. *Panicum fasciculatum*.  
 1980. *Panicum reptans*.  
 1984. *Paspalum conjugatum*.  
 1986. *Paspalum pubiflorum*.  
 1987. *Paspalum millegrana*.  
 1989. *Paspalum plicatum*.  
 1990. *Paspalum virgatum*.  
 1991. *Paspalum distichum*.  
 1992. *Paspalum distichum*.  
 1995. *Paspalum virgatum*.  
 1996. *Paspalum breve*.  
 1997. *Paspalum breve*.  
 1999. *Pharus latifolius*.  
 2000. *Sporobolus indicus*.  
 2001. *Sporobolus berterianus*.  
 2002. *Syntherisma digitata*.  
 2004. *Syntherisma sanguinalis*.  
 2006. *Syntherisma sanguinalis*.  
 2007. *Hymenachne amplexicaulis*.  
 2009. *Hymenachne amplexicaulis*.  
 2010. *Pappophorum alopecuroides*.

2011. *Muhlenbergia capillaris*.  
 2013. *Andropogon caricosus*.  
 2014. *Gouinia virgata*.  
 2017. *Anthephora hermaphrodita*.  
 2018. *Axonopus compressus*.  
 2019. *Leptochloa virgata*.  
 2020. *Leptochloa fascicularis*.  
 2381. *Paspalum caespitosum*.  
 2382. *Panicum distantiflorum*.  
 2389. *Andropogon caricosus*.  
 2391. *Cenchrus carolinianus*.  
 2401. *Paspalum unispicatum*.  
 2532. *Panicum diffusum*.  
 2556. *Paspalum alterniflorum*.  
 2557. *Andropogon saccharoides*.  
 2559. *Panicum diffusum*.  
 2560. *Chloris sagraeana*.  
 2561. *Paspalum alterniflorum*.  
 2602. *Lasiacis divaricata*.  
 2604. *Cenchrus viridis*.  
 2614. *Paspalum distachyon*.  
 2625. *Paspalum bakeri*.  
 2639. *Paspalum virgatum*.  
 2641. *Aristida refracta*.  
 2642. *Paspalum distichum*.  
 2674. *Panicum ghiesbreghtii*.  
 2683. *Manisuris exaltata*.  
 2686. *Eriochloa punctata*.  
 2687. *Eriochloa filifolia*.  
 2691. *Paspalum leoninum*.  
 2738. *Paspalum propinquum*.  
 2743. *Panicum zizanioides*.  
 2774. *Panicum dichotomiflorum*.  
 2775. *Panicum dichotomiflorum*.  
 2783. *Paspalum distachyon*.  
 2784. *Holcus sorghum*.  
 2785. *Echinochloa sabulicola*.  
 2786. *Eragrostis amabilis*.  
 2787. *Andropogon bicornis*.  
 2788. *Cymbopogon hirtus*.  
 2791. *Andropogon semiberbis*.  
 2792. *Heteropogon contortus*.  
 2823. *Aristida refracta*.  
 2869. *Panicum reptans*.  
 2870. *Paspalum millegrana*.  
 2871. *Panicum maximum*.  
 2873. *Ichnanthus nemorosus*.  
 2874. *Lasiacis grisebachii*.  
 2875. *Aristida curtifolia*.  
 2876. *Andropogon fastigiatus*.  
 2877. *Andropogon semiberbis*.  
 3397. *Andropogon tener*.  
 3398. *Trachypogon filifolius*.  
 3441. *Syntherisma sanguinalis*.  
 3443. *Aristida scabra*.  
 3444. *Eragrostis prolifera*.  
 3445. *Cenchrus carolinianus*.  
 3446. *Paspalum glabrum*.  
 3448. *Eriochloa punctata*.  
 3449. *Panicum diffusum*.  
 3450. *Ichnanthus mayarensis*.  
 3451. *Andropogon fastigiatus*.  
 3453. *Cenchrus carolinianus*.  
 3454. *Paspalum plicatulum*.  
 3455. *Aristida curtifolia*.  
 3456. *Chaetochloa onurus*.  
 3457. *Paspalum lindenianum*.  
 3459. *Andropogon leucostachyus*.  
 3461. *Chloris virgata*.  
 3462. *Paspalum plicatulum*.  
 3465. *Leptocoryphium lanatum*.  
 3466. *Panicum albomarginatum*.  
 3467. *Sporobolus brasiliensis*.  
 3468. *Homalocenchrus monandrus*.  
 3469. *Mesosetum loliforme*.  
 3470. *Paspalum plicatulum*.  
 3471. *Eragrostis cubensis*.  
 3472. *Panicum acuminatum*.  
 3473. *Paspalum alterniflorum*.  
 3474. *Panicum reptans*.  
 3475. *Distichlis spicata*.  
 3477. *Paspalum breve*.  
 3478. *Paspalum propinquum*.  
 3479. *Bouteloua buterostega*.  
 3480. *Reynaudia filiformis*.  
 3482. *Paspalum leoninum*.  
 3635. *Ichnanthus nemorosus*.  
 3676. *Paspalum caespitosum*.  
 3678. *Eragrostis prolifera*.  
 3694. *Paspalum poiretii*.  
 3701. *Paspalum caespitosum*.  
 3702. *Sporobolus virginicus*.  
 3726. *Eragrostis pilosa*.  
 3747. *Panicum ghiesbreghtii*.  
 3775. *Chaetochloa setosa*.  
 3776. *Chaetochloa setosa*.  
 3778. *Lasiacis ruscifolia*.  
 3779. *Homalocenchrus monandrus*.  
 3781. *Paspalum paniculatum*.  
 3783. *Panicum ghiesbreghtii*.  
 3788. *Andropogon bicornis*.  
 3790. *Panicum glutinosum*.  
 3825. *Arthrostylidium sarmentosum*.  
 3907. *Pharus glaber*.  
 3908. *Ichnanthus nemorosus*.  
 3911. *Leptochloa fascicularis*.

3913. *Panicum hirsutum*.  
 3946. *Chaetochloa setosa*.  
 3962. *Paspalum virgatum*.  
 3963. *Cenchrus viridis*.  
 3964. *Chloris virgata*.  
 3965. *Eragrostis pilosa*.  
 3966. *Panicum fasciculatum*.  
 3973. *Arundinella deppeana*.  
 3978. *Paspalum paniculatum*.  
 3980. *Paspalum poiretii*.  
 3982. *Panicum pilosum*.  
 3982½. *Panicum laxum*.  
 3990. *Olyra latifolia*.  
 3997. *Ichnanthus nemorosus*.  
 3998. *Panicum glutinosum*.  
 4000. *Pharus parvifolius*.  
 4009. *Arundinella berteroniana*.  
 4026. *Arthrostylidium multispicatum*.  
 4094. *Andropogon hirtiflorus*.  
 4095. *Heteropogon contortus*.  
 4097. *Andropogon saccharoides*.  
 4098. *Ryttilix granularis*.  
 4099. *Paspalum unispicatum*.  
 4100. *Paspalum breve*.  
 4101. *Andropogon saccharoides*.  
 4105. *Panicum trichoides*.  
 4139. *Oplismenus setarius*.  
 4140. *Mniochloa strephioides*.  
 4141. *Panicum condensum*.  
 4143. *Ichnanthus mayarensis*.  
 4145. *Chaetochloa onurus*.  
 4146. *Tricholaena rosea*.  
 4147. *Bouteloua heterostega*.  
 4151. *Pappophorum alopecuroideum*.  
 4155. *Panicum aquaticum*.  
 4157. *Paspalum millegrana*.  
 4160. *Paspalum millegrana*.  
 4168. *Echinochloa spectabilis*.  
 4182. *Chaetochloa geniculata*.  
 4183. *Paspalum ciliiferum*.  
 4184. *Hymenachne amplexicaulis*.  
 4190. *Panicum barbinode*.  
 4191. *Homalocenchrus hexandrus*.  
 4192. *Hymenachne amplexicaulis*.  
 4193. *Luziola spruceana*.  
 4262. *Imperata brasiliensis*.  
 4315. *Eriochloa punctata*.  
 4332. *Syntherisma serotina*.  
 4333. *Paspalum plicatulum*.  
 4354. *Eragrostis tephrosanthos*.  
 4362. *Panicum ghiesbreghtii*.  
 4363. *Paspalum plicatulum*.  
 4364. *Paspalum millegrana*.  
 4366. *Paspalum virgatum*.  
 4366½. *Paspalum secans*.  
 4367. *Paspalum virgatum*.  
 4371. *Panicum acuminatum*.  
 4383. *Achlaena piptostachya*.  
 4391. *Mniochloa strephioides*.  
 4413. *Paspalum distichum*.  
 4430. *Paspalum conjugatum*.  
 4432. *Panicum trichoides*.  
 4439. *Syntherisma curvinervis*.  
 4446. *Arthrostylidium urbanii*.  
 4447. *Panicum laxum*.  
 4453. *Andropogon nashianus*.  
 4454. *Panicum albomarginatum*.  
 4461. *Paspalum plicatulum*.  
 4468. *Paspalum minus*.  
 4522. *Brachiaria platyphylla*.  
 4526. *Paspalum notatum*.  
 4557. *Paspalum plicatulum*.  
 4558. *Panicum acuminatum*.  
 4559. *Eragrostis cubensis*.  
 4560. *Andropogon nashianus*.  
 4563. *Lasiacis sloanei*.  
 4564. *Leptocoryphium lanatum*.  
 4569. *Paspalum decumbens*.  
 4570. *Paspalum nanum*.  
 4572. *Mniochloa strephioides*.  
 4593. *Mniochloa strephioides*.  
 4595. *Panicum millegrana*.  
 4601. *Panicum ghiesbreghtii*.  
 4602. *Panicum millegrana*.  
 4635. *Paspalum denticulatum*.  
 4640. *Ryttilix granularis*.  
 4645. *Aristida curtifolia*.  
 4646. *Aristida refracta*.  
 4662. *Lasiacis divaricata*.  
 4664. *Paspalum poiretii*.  
 4681. *Hymenachne amplexicaulis*.  
 4715. *Syntherisma argillacea*.  
 4716. *Andropogon saccharoides*.  
 4718. *Aristida refracta*.  
 4719. *Andropogon fastigiatus*.  
 4720. *Oplismenus setarius*.  
 4725. *Bouteloua americana*.  
 4753. *Cenchrus echinatus*.  
 4783. *Chloris sagraeana*.  
 4784. *Panicum utowanaeum*.  
 4785. *Syntherisma argillacea*.  
 4786. *Chloris cruciata*.  
 4787. *Chloris sagraeana*.  
 4788. *Chloris cruciata*.  
 4789. *Bouteloua americana*.  
 4792. *Bouteloua heterostega*.

4807. *Chloris sagraeana*.  
 4829. *Panicum strigosum*.  
 4833. *Panicum acuminatum*.  
 4834. *Panicum acuminatum*.  
 4835. *Panicum chrysopsidifolium*.  
 4836. *Panicum millegrana*.  
 4837. *Panicum acuminatum*.  
 4840. *Panicum chrysopsidifolium*.  
 4841. *Panicum acuminatum*.  
 4843. *Isachne leersioides*.  
 4844. *Aristida curtifolia*.  
 4845. *Aristida refracta*.  
 4846. *Aristida refracta*.  
 4847. *Arundinella deppeana*.  
 4848. *Brachiaria platyphylla*.  
 4849. *Ichnanthus pallens*.  
 4851. *Andropogon virginicus*.  
 4852. *Aristida erecta*.  
 4853. *Arthrostylidium capillifolium*.  
 4854. *Arthrostylidium capillifolium*.  
 4855. *Chloris sagraeana*.  
 4856. *Paspalum minus*.  
 4857. *Paspalum filiforme*.  
 4858. *Paspalum clavuliferum*.  
 5015. *Aristida curtifolia*.  
 5052. *Lolium temulentum arvense*.  
 5062. *Panicum condensum*.  
 5075. *Paspalum conjugatum*.  
 5077. *Andropogon annulatus*.  
 5078. *Isachne leersioides*.  
 5085. *Andropogon gracilis*.  
 5148. *Lasiacis sloanei*.  
 5167. *Paspalum notatum*.  
 5168. *Andropogon gracilis*.  
 5174. *Panicum laxum*.  
 5177. *Panicum chrysopsidifolium*.  
 5212. *Chaetochloa geniculata*.  
 5213. *Aristida curtifolia*.  
 5270. *Eragrostis prolifera*.  
 5272. *Paspalum lindenianum*.  
 5275. *Arthrostylidium cubense*.  
 5276. *Aristida refracta*.  
 5277. *Andropogon saccharoides*.  
 5301. *Andropogon saccharoides*.  
 5302. *Andropogon virginicus*.  
 5356. *Heteropogon contortus*.  
 5357. *Andropogon saccharoides*.  
 5364. *Paspalum plicatum*.  
 5365. *Sorghastrum parviflorum*.  
 5400. *Andropogon virginicus*.  
 5402. *Panicum stenodes*.  
 5406. *Panicum lancearium*.  
 5407. *Andropogon leucostachyus*.  
 5460. *Panicum boliviense*.  
 5467. *Sporobolus argutus*.  
 5468. *Sporobolus indicus*.  
 5582. *Paspalum unispicatum*.  
 5602. *Paspalum poiretii*.  
 5603. *Panicum utowanaeum*.  
 5604. *Paspalum ciliatifolium*.  
 5605. *Aristida refracta*.  
 5606. *Aristida refracta*.  
 5607. *Eriochloa filifolia*.  
 5608. *Panicum exiguiiflorum*.  
 5618. *Cenchrus viridis*.  
 5620. *Eragrostis prolifera*.  
 5631. *Sporobolus virginicus*.  
 5634. *Cenchrus carolinianus*.  
 5650. *Eragrostis prolifera*.  
 5651. *Eragrostis prolifera*.  
 5656. *Sporobolus littoralis*.  
 5680. *Paspalum alterniflorum*.  
 5681. *Panicum diffusum*.  
 5682. *Imperata contracta*.  
 5683. *Cenchrus viridis*.  
 5684. *Chaetochloa onurus*.  
 5685. *Lasiacis grisebachii*.  
 5702. *Panicum aquaticum*.  
 5748. *Hymenachne amplexicaulis*.  
 5749. *Homalocenchrus hexandrus*.  
 5750. *Sacciolepis striata*.  
 5754. *Panicum virgatum cubense*.  
 5755. *Panicum virgatum cubense*.  
 5756. *Muhlenbergia capillaris*.  
 5757. *Distichlis spicata*.  
 5758. *Sporobolus virginicus*.  
 5818. *Andropogon tener*.  
 5821. *Andropogon glomeratus*.  
 5823. *Panicum aquaticum*.  
 5827. *Leptocoryphium lanatum*.  
 5830. *Aristida refracta*.  
 5834. *Aristida curtifolia*.  
 5835. *Chaetochloa geniculata*.  
 5836. *Andropogon brevifolius*.  
 5840. *Panicum fusiforme*.  
 5841. *Cymbopogon hirtus*.  
 5843. *Syntherisma argillacea*.  
 5844. *Paspalum plicatum*.  
 5846. *Panicum laxum*.  
 5850. *Paspalum reptatum*.  
 5856. *Panicum tenerum*.  
 5863. *Aristida refracta*.  
 5864. *Andropogon brevifolius*.  
 5867. *Mesosetum loliforme*.  
 5868. *Panicum stenodes*.  
 5870. *Cymbopogon hirtus*.



5874. *Aristida refracta*.  
 5880. *Sporobolus indicus*.  
 5884. *Eragrostis elliottii*.  
 5886. *Ischaemum rugosum*.  
 5890. *Panicum laxum*.  
 5892. *Panicum laxum*.  
 5898. *Panicum nitidum*.  
 5904. *Echinochloa colonum*.  
 5906. *Panicum boliviense*.  
 5916. *Arundinella deppeana*.  
 5941. *Luziola peruviana*.  
 5944. *Homalocenchrus hexandrus*.  
 5972. *Andropogon virginicus*.  
 5977. *Panicum tenerum*.  
 5984. *Panicum laxum*.  
 5994. *Andropogon semiberbis*.  
 5998. *Panicum aquaticum*.  
 6004. *Panicum laxum*.  
 6005. *Panicum ghiesbreghtii*.  
 6006. *Panicum maximum*.  
 6007. *Cenchrus viridis*.  
 6008. *Andropogon saccharoides*.  
 6009. *Paspalum filiforme*.  
 6026. *Paspalum plicatulum*.  
 6045. *Panicum stenodes*.  
 6142. *Panicum aquaticum*.  
 6152. *Panicum caerulescens*.  
 6185. *Sporobolus argutus*.  
 6204. *Paspalum distichum*.  
 6222. *Andropogon leucostachyus*.  
 6299. *Panicum distantiflorum*.  
 6313. *Panicum laxum*.  
 6321. *Paspalum ciliiferum*.  
 6326. *Andropogon tener*.  
 6353. *Pharus glaber*.  
 6354. *Paspalum simpsoni*.  
 6361. *Tricholaena rosea*.  
 6372. *Panicum utowanaeum*.  
 6373. *Ichnanthus mayarensis*.  
 6374. *Aristida refracta*.  
 6377. *Panicum exiguiflorum*.  
 6416. *Panicum tenerum*.  
 6417. *Paspalum clavuliferum*.  
 6418. *Paspalum clavuliferum*.  
 6419. *Paspalum plicatulum*.  
 6420. *Paspalum densum*.  
 6421. *Leptochloa filiformis*.  
 6422. *Panicum chrysopsidifolium*.  
 6423. *Paspalum notatum*.  
 6424. *Andropogon selloanus*.  
 6425. *Eragrostis elliottii*.  
 6426. *Aristida refracta*.  
 6427. *Panicum laxum*.  
 6428. *Andropogon selloanus*.  
 6429. *Panicum ghiesbreghtii*.  
 6430. *Mesosetum wrightii*.  
 6431. *Andropogon leucostachyus*.  
 6432. *Andropogon tener*.  
 6434. *Chloris virgata*.  
 6457. *Panicum jorii*.  
 6515. *Panicum boliviense*.  
 6520. *Isachne leersioides*.  
 6524. *Ichnanthus pallens*.  
 6525. *Arundinella confinis*.  
 6529. *Andropogon leucostachyus*.  
 6539. *Chaetochloa geniculata*.  
 6574. *Panicum boliviense*.  
 6595. *Panicum jorii*.  
 6606. *Panicum boliviense*.  
 6620. *Panicum glutinosum*.  
 6621. *Olyra latifolia*.  
 6652. *Andropogon gracilis*.  
 6654. *Panicum exiguiflorum*.  
 6655. *Paspalum clavuliferum*.  
 6656. *Andropogon virginicus*.  
 6661. *Paspalum filiforme*.  
 6663. *Ryttilix granularis*.  
 6730. *Isachne leersioides*.  
 6732. *Eragrostis glutinosa*.  
 6734. *Paspalum vaginatum*.  
 6735. *Paspalum millegrana*.  
 6743. *Paspalum secans*.  
 6745. *Syntherisma panicea*.  
 6901. *Saugetia fasciculata*.  
 6902. *Panicum acuminatum*.  
 6903. *Panicum leucothrix*.  
 6911. *Andropogon fastigiatus*.  
 6918. *Aristida erecta*.  
 6919. *Panicum tenerum*.  
 6923. *Sporobolus purpurascens*.  
 6936. *Paspalum pulchellum*.  
 6941. *Cenchrus distichophyllus*.  
 6942. *Aristida gyrans*.  
 6943. *Panicum albomarginatum*.  
 6944. *Panicum parvifolium*.  
 6948. *Panicum exiguiflorum*.  
 6952. *Panicum boliviense*.  
 6971. *Aristida refracta*.  
 6981. *Manisuris leonina*.  
 6984. *Sporobolus purpurascens*.  
 6988. *Andropogon virgatus*.  
 6989. *Paspalum notatum*.  
 6998. *Panicum stenodes*.  
 7004. *Panicum exiguiflorum*.  
 7005. *Panicum chrysopsidifolium*.  
 7006. *Panicum albomarginatum*.

7007. *Panicum fusiforme*.  
 7008. *Panicum exiguiflorum*.  
 7009. *Panicum albomarginatum*.  
 7030. *Aristida curtifolia*.  
 7031. *Aristida refracta*.

LEÓN, BROTHER, AND EKMAN, E. L.

4265. *Phalaris canariensis*.  
 4268. *Eragrostis hypnoides*.  
 4269. *Eragrostis hypnoides*.

LEÓN, BROTHER, AND SHAFER, J. A.

3443. *Aristida scabra*.  
 3467. *Sporobolus brasiliensis*.  
 13635. *Panicum zizanioides*.  
 13670. *Paspalum minus*.  
 13717. *Panicum cayennense*.  
 13719. *Panicum acuminatum*.

LIEBMANN, F. M.

166. *Paspalum secans*.  
 194. *Paspalum alterniflorum*.  
 201. *Paspalum alterniflorum*.  
 216. *Syntherisma digitata*.  
 232. *Capriola dactylon*.  
 233. *Capriola dactylon*.  
 234. *Capriola dactylon*.  
 235. *Chloris petraea*.  
 249. *Leptochloa virgata*.  
 250. *Leptochloa virgata*.  
 259. *Olyra latifolia*.  
 264. *Olyra latifolia*.  
 347. *Chaetochloa verticillata*.  
 348. *Chaetochloa verticillata*.  
 376. *Echinochloa colonum*.  
 378. *Echinochloa sabulicola*.  
 445. *Panicum maximum*.  
 446. *Panicum maximum*.  
 469. *Cenchrus echinatus*.  
 699. *Sporobolus argutus*.

LINDEN, J. J.

1811. *Pharus latifolius*.  
 1813. *Paspalum lindianum*.  
 1815. *Eleusine indica*.  
 1816. *Syntherisma digitata*.  
 1818. *Andropogon saccharoides*.  
 1819. *Capriola dactylon*.  
 2143. *Panicum glutinosum*.

LLOYD, C. G.

1030. *Lasiacis sorghoidea*.  
 1033. *Paspalum fimbriatum*.

1034. *Chloris radiata*.  
 1035. *Lasiacis sloanei*.  
 1115. *Syntherisma digitata*.  
 1116. *Panicum fasciculatum*.  
 1118. *Anthephora hermaphrodita*.  
 1119. *Eragrostis ciliaris*.  
 1120. *Eleusine indica*.

MAXON, W. R.

726. *Cenchrus echinatus*.  
 766. *Chloris paraguayensis*.  
 768. *Paspalum fimbriatum*.  
 1198. *Senites zeugites*.  
 1448. *Poa annua*.  
 1459. *Briza minor*.  
 1629. *Leptochloa virgata*.  
 1640. *Cenchrus viridis*.  
 1642. *Paspalum fimbriatum*.  
 1644. *Cenchrus echinatus*.  
 1645. *Valota insularis*.  
 1655. *Sporobolus indicus*.  
 1658. *Leptochloa filiformis*.  
 1659. *Panicum fasciculatum*.  
 1661. *Eleusine indica*.  
 1967. *Sporobolus indicus*.  
 2003. *Chaetochloa geniculata*.  
 2109. *Panicum zizanioides*.  
 2182. *Pharus glaber*.  
 2187. *Phragmites phragmites*.  
 2215. *Pharus glaber*.  
 2361. *Panicum fasciculatum*.  
 2363. *Paspalum conjugatum*.  
 2367. *Olyra latifolia*.  
 2368. *Chaetochloa geniculata*.  
 2540. *Andropogon bicornis*.  
 2652. *Briza minor*.  
 2673. *Senites zeugites*.  
 2800. *Andropogon bicornis*.  
 2811. *Andropogon glomeratus*.  
 2812. *Paspalum plicatulum*.  
 2816. *Panicum glutinosum*.  
 2940. *Andropogon bicornis*.  
 2945. *Andropogon glomeratus*.  
 2951. *Oplismenus hirtellus*.  
 2980. *Paspalum virgatum*.  
 4155. *Pharus parvifolius*.  
 4487a. *Arthrostylidium sarmentosum*.

MILLSPAUGH, C. F.

15. *Stenotaphrum secundatum*.  
 45. *Chaetochloa geniculata*.  
 50. *Chaetochloa geniculata*.

88. *Sporobolus berteroi*.  
 99. *Chaetochloa verticillata*.  
 125. *Capriola dactylon*.  
 126. *Panicum dichotomiflorum*.  
 127. *Chaetochloa verticillata*.  
 163. *Cenchrus echinatus*.  
 214. *Echinochloa colonum*.  
 215. *Chloris radiata*.  
 233. *Coix lachryma-jobi*.  
 256. *Dactyloctenium aegyptium*.  
 321. *Eragrostis ciliaris*.  
 324. *Panicum barbinode*.  
 333. *Syntherisma digitata*.  
 335. *Echinochloa colonum*.  
 352. *Ichnanthus pallens*.  
 359. *Capriola dactylon*.  
 368. *Valota insularis*.  
 385. *Valota insularis*.  
 410. *Chloris paraguayensis*.  
 438. *Cenchrus echinatus*.  
 441. *Chloris paraguayensis*.  
 454. *Panicum maximum*.  
 519. *Lasiacis divaricata*.  
 520. *Lasiacis sorghoidea*.  
 539. *Valota insularis*.  
 569. *Echinochloa colonum*.  
 573. *Chloris paraguayensis*.  
 592. *Chloris paraguayensis*.  
 619. *Cenchrus viridis*.  
 702. *Panicum utowanaeum*.  
 726. *Panicum reptans*.  
 727. *Panicum barbinode*.  
 732. *Echinochloa colonum*.  
 733. *Chloris paraguayensis*.  
 737. *Eleusine indica*.  
 738. *Dactyloctenium aegyptium*.  
 808. *Cenchrus viridis*.  
 863. *Syntherisma sanguinalis*.  
 891. *Chloris radiata*.  
 924. *Oplismenus hirtellus*.  
 936. *Sporobolus berteroi*.  
 944. *Paspalum fimbriatum*.  
 976. *Coix lachryma-jobi*.  
 1015. *Lasiacis divaricata*.  
 1062. *Eragrostis ciliaris*.  
 1064. *Chloris paraguayensis*.  
 1110. *Cenchrus echinatus*.  
 1111. *Eleusine indica*.  
 1153. *Valota insularis*.  
 1162. *Cenchrus carolinianus*.  
 1190. *Eragrostis ciliaris*.  
 1224. *Holcus sorghum*.  
 1226. *Lasiacis divaricata*.

1240. *Eragrostis prolifera*.  
 1249. *Cenchrus carolinianus*.  
 1253. *Chloris petraea*.  
 1267. *Dactyloctenium aegyptium*.  
 1268. *Cenchrus viridis*.  
 1269. *Antheophora hermaphrodita*.  
 1270. *Eleusine indica*.  
 1271. *Chloris polydactyla*.  
 1408. *Paspalum simpsoni*.  
 1422. *Lasiacis divaricata*.  
 1459. *Stenotaphrum secundatum*.  
 1859. *Panicum pilosum*.  
 1907. *Paspalum paniculatum*.  
 1915. *Hymenachne amplexicaulis*.  
 1968. *Lasiacis sorghoidea*.  
 9012. *Eragrostis ciliaris*.  
 9234. *Eragrostis ciliaris*.  
 9268. *Eragrostis ciliaris*.  
 9339. *Eragrostis ciliaris*.  
 9341. *Eragrostis ciliaris*.

MOORE, J. C.

17. *Cenchrus echinatus*.

NASH, G. V.

1780. *Eragrostis prolifera*.

NASH, G. V., AND TAYLOR, N.

926. *Aristida scabra*.  
 956. *Paspalum secans*.  
 1217. *Eragrostis bahamensis*.  
 1353. *Paspalum glabrum*.  
 1372. *Eragrostis ciliaris*.  
 1482. *Pharus parvifolius*.  
 3846. *Eragrostis ciliaris*.

NICHOLS, G. E.

37. *Chaetochloa palmifolia*.  
 40. *Briza minor*.  
 115. *Senites zeugites*.  
 168. *Chusquea abietifolia*.  
 190. *Pharus latifolius*.  
 202. *Paspalum conjugatum*.

OTHMER, B.

385. *Lasiacis ruscifolia*.

OTTO, C. F. E.

268. *Arundinella deppeana*.

## PALMER, E.

374. *Eragrostis amabilis*.

## PALMER, W., AND RILEY, J. H.

12. *Oplismenus hirtellus*.  
 13. *Eragrostis ciliaris*.  
 70. *Arundinella deppenana*.  
 86. *Andropogon bicornis*.  
 95. *Andropogon bicornis*.  
 97. *Paspalum virgatum*.  
 105. *Lithachne pauciflora*.  
 115. *Olyra latifolia*.  
 123. *Pharus glaber*.  
 130. *Ichnanthus pallens*.  
 142. *Coix lachryma-jobi*.  
 146. *Oplismenus hirtellus*.  
 178. *Panicum maximum*.  
 179a. *Paspalum paniculatum*.  
 185. *Eragrostis ciliaris*.  
 213. *Panicum strigosum*.  
 216. *Olyra latifolia*.  
 218. *Ichnanthus pallens*.  
 260. *Pharus glaber*.  
 349. *Sporobolus indicus*.  
 377. *Panicum maximum*.  
 404. *Sporobolus indicus*.  
 440. *Leptocoryphium lanatum*.  
 441. *Eragrostis elliottii*.  
 447. *Panicum acuminatum*.  
 472. *Imperata brasiliensis*.  
 473. *Sporobolus indicus*.  
 480. *Andropogon leucostachyus*.  
 481. *Panicum chrysopsidifolium*.  
 541. *Paspalum conjugatum*.  
 542. *Panicum maximum*.  
 543. *Leptochloa virgata*.  
 544. *Paspalum paniculatum*.  
 545. *Panicum maximum*.  
 546. *Chaetochloa geniculata*.  
 616. *Gynerium sagittatum*.  
 627. *Sporobolus indicus*.  
 628. *Paspalum virgatum*.  
 664. *Holcus halepensis*.  
 665. *Cenchrus echinatus*.  
 679. *Cenchrus echinatus*.  
 725. *Chloris paraguayensis*.  
 736. *Sporobolus virginicus*.  
 746. *Panicum adpersum*.  
 751. *Uniola paniculata*.  
 756. *Echinochloa colonum*.  
 759. *Stenotaphrum secundatum*.

771. *Panicum adpersum*.  
 781. *Cenchrus echinatus*.  
 802. *Panicum diffusum*.  
 813 (in part). *Paspalum secans*.  
 813 (in part). *Paspalum virgatum*.  
 815. *Holcus halepensis*.  
 816. *Panicum maximum*.  
 817. *Eleusine indica*.  
 822. *Stenotaphrum secundatum*.  
 848. *Paspalum vaginatum*.  
 889. *Mesosetum loliforme*.  
 904. *Lasiacis ruscifolia*.  
 913. *Achlaena piptostachya*.  
 947. *Paspalum plicatulum*.  
 948. *Eragrostis elliottii*.  
 949. *Paspalum lindenianum*.  
 955. *Sporobolus virginicus*.  
 969. *Chloris petraea*.  
 972. *Leptocoryphium lanatum*.  
 978. *Paspalum minus*.  
 982. *Panicum chrysopsidifolium*.  
 986. *Mesosetum loliforme*.  
 989. *Panicum acuminatum*.  
 990. *Panicum polycaulon*.  
 995. *Aristida gyrans*.  
 1000. *Chaetochloa setosa*.  
 1001. *Lasiacis divaricata*.  
 1008. *Stenotaphrum secundatum*.  
 1057. *Paspalum virgatum*.  
 1058. *Olyra latifolia*.  
 1065. *Panicum viscidellum*.  
 1066. *Olyra latifolia*.  
 1069. *Panicum laxum*.  
 1083. *Panicum acuminatum*.  
 1084. *Ryttilix granularis*.  
 1086. *Panicum cayennense*.  
 1092. *Ryttilix granularis*.  
 1119. *Paspalum notatum*.  
 1121. *Sporobolus indicus*.  
 1122. *Sporobolus virginicus*.  
 1125. *Andropogon bicornis*.  
 1134. *Panicum virgatum cubense*.  
 1137. *Echinochloa colonum*.  
 1146. *Cenchrus carolinianus*.  
 1150. *Chloris paraguayensis*.

## PAULSEN, O.

313. *Paspalum vaginatum*.

## PICARDA, PÈRE.

1019. *Poa compressa*.  
 1523. *Senites haitiensis*.

1554. *Aristida gyrans*.  
 1634. *Sorghastrum parviflorum*.  
 1654. *Panicum hirticaule*.

POLLARD, C. L., PALMER, E., AND  
 PALMER, W.

15. *Ichnanthus pallens*.  
 19. *Panicum reptans*.  
 53. *Olyra latifolia*.  
 76. *Lasiacis divaricata*.  
 273. *Leptochloa virgata*.  
 283. *Panicum maximum*.  
 284. *Cenchrus viridis*.

POLLARD, C. L., AND PALMER, W.

350. *Valota insularis*.

PÖPPIG, E.

7. *Sporobolus virginicus*.

PREY, N.

64. *Stenotaphrum secundatum*.

PRINGLE, C. G.

26. *Panicum barbinode*.  
 45. *Echinochloa colonum*.  
 54. *Lithachne pauciflora*.  
 62. *Leptochloa virgata*.  
 70. *Olyra latifolia*.  
 73. *Panicum reptans*.  
 74. *Panicum fasciculatum*.  
 76. *Oplismenus hirtellus*.  
 124. *Panicum fasciculatum*.

PURDIE, W.

26. *Olyra ciliatifolia*.

RAUNKIAER, C.

634. *Cenchrus carolinianus*.

RICKSECKER, A. E.

3. *Eleusine indica*.  
 13. *Coix lachryma-jobi*.  
 31. *Echinochloa colonum*.  
 33. *Eragrostis ciliaris*.  
 42. *Chloris ciliata*.

43. *Eleusine indica*.  
 44. *Chloris radiata*.  
 45. *Syntherisma digitata*.  
 46. *Dactyloctenium aegyptium*.  
 56. *Axonopus compressus*.  
 64. *Aristida adscensionis*.  
 66. *Panicum adspersum*.  
 67. *Chaetochloa rariflora*.  
 71. *Sporobolus berterioanus*.  
 77. *Panicum reptans*.  
 78. *Bouteloua americana*.  
 105. *Stenotaphrum secundatum*.  
 106. *Echinochloa colonum*.  
 111. *Holcus sorghum*.  
 124. *Cenchrus echinatus*.  
 142. *Valota insularis*.  
 148. *Eragrostis ciliaris*.  
 200. *Panicum maximum*.  
 209. *Andropogon pertusus panormitanus*.  
 212. *Panicum geminatum*.  
 221. *Eragrostis barrelieri*.  
 222. *Eragrostis pilosa*.  
 223. *Paspalum conjugatum*.  
 238. *Paspalum fimbriatum*.  
 243. *Chaetochloa geniculata*.  
 250. *Oplismenus setarius*.  
 253 (in part). *Antheophora hermaphrodita*.  
 253 (in part). *Bambos vulgaris*.  
 256. *Capriola dactylon*.  
 257. *Lasiacis divaricata*.  
 258 (in part). *Leptochloa virgata*.  
 258 (in part). *Leptochloa filiformis*.  
 279. *Sporobolus argutus*.  
 289. *Lasiacis sorghoidea*.  
 290. *Sporobolus maralis*.  
 300. *Panicum barbinode*.  
 306. *Leptochloa fascicularis*.  
 317. *Panicum fasciculatum*.  
 381. *Nazia aliena*.  
 383. *Chaetochloa geniculata*.  
 384. *Panicum adspersum*.  
 390. *Nazia aliena*.  
 391. *Sporobolus berterioanus*.  
 393. *Capriola dactylon*.  
 396. *Valota insularis*.  
 400b. *Lasiacis divaricata*.  
 407. *Chaetochloa setosa*.  
 408. *Sporobolus virginicus*.  
 410. *Paspalum glabrum*.  
 413. *Panicum maximum*.  
 415. *Stenotaphrum secundatum*.

- 433. *Paspalum distichum*.
- 434. *Paspalum secans*.
- 443. *Cenchrus echinatus*.
- 457. *Syntherisma sanguinalis*.
- 467. *Eriochloa punctata*.
- 480. *Pharus glaber*.

ROSE, J. N.

- 3184. *Panicum maximum*.
- 3189. *Aristida cognata*.

ROSE, J. N., FITCH, W. R., AND RUSSELL, P. G.

- 3211. *Aristida adscensionis*.
- 3236. *Dactyloctenium aegyptium*.
- 3266. *Valota insularis*.
- 3286. *Andropogon bicornis*.
- 3377. *Chloris paraguayensis*.
- 3382. *Andropogon nodosus*.
- 3391. *Chaetochloa barbata*.
- 3392. *Lasiacis divaricata*.
- 3398. *Valota insularis*.
- 3409. *Paspalum fimbriatum*.
- 3412. *Cenchrus echinatus*.
- 3415. *Andropogon nodosus*.
- 3421. *Pharus glaber*.
- 3427. *Andropogon bicornis*.
- 3451. *Leptochloa virgata*.
- 3452. *Panicum maximum*.
- 3453. *Lasiacis sorghoidea*.
- 3484. *Lasiacis sorghoidea*.
- 3485. *Oplismenus setarius*.
- 3486. *Lithachne pauciflora*.
- 3487. *Ichnanthus pallens*.
- 3493. *Lasiacis sorghoidea*.
- 3523. *Andropogon pertusus panormitanus*.
- 3532. *Paspalum fimbriatum*.
- 3533. *Andropogon pertusus panormitanus*.
- 3534. *Chloris paraguayensis*.
- 3609. *Lasiacis divaricata*.
- 3624. *Lasiacis sorghoidea*.
- 3625. *Oplismenus setarius*.
- 3647. *Lasiacis sorghoidea*.
- 3655. *Pharus glaber*.
- 3656. *Pharus glaber*.
- 3659. *Lasiacis divaricata*.
- 3660. *Lasiacis divaricata*.
- 3661. *Coix lachryma-jobi*.
- 3739. *Lasiacis divaricata*.

- 3748. *Ichnanthus pallens*.
- 3798. *Phragmites phragmites*.
- 3825. *Uniola virgata*.
- 3826. *Heteropogon contortus*.
- 3891. *Panicum utowanaeum*.
- 3948. *Cenchrus viridis*.
- 3949. *Panicum maximum*.
- 3950. *Echinochloa colonum*.
- 3986. *Olyra latifolia*.
- 4027. *Aristida gyrans*.
- 4049. *Holcus halepensis*.
- 4079. *Paspalum poiretii*.
- 4142. *Lasiacis divaricata*.
- 4159. *Lasiacis divaricata*.
- 4169. *Paspalum paniculatum*.
- 4170. *Syntherisma sanguinalis*.
- 4171. *Panicum reptans*.
- 4172. *Panicum maximum*.
- 4174. *Panicum fasciculatum*.
- 4203. *Olyra latifolia*.
- 4219. *Syntherisma sanguinalis*.
- 4228. *Eragrostis hypnoides*.
- 4293. *Dactyloctenium aegyptium*.
- 4299. *Sporobolus virginicus*.
- 4328. *Eragrostis hypnoides*.
- 4333. *Ichnanthus pallens*.
- 4343. *Olyra latifolia*.
- 4410. *Panicum diffusum*.
- 4419. *Syntherisma digitata*.
- 4421. *Echinochloa colonum*.
- 4422. *Eleusine indica*.
- 4438. *Echinochloa colonum*.
- 4439. *Leptochloa virgata*.
- 4440. *Panicum fasciculatum*.
- 4441. *Lasiacis divaricata*.

ROWLEE, W. W.

- 49. *Stenotaphrum secundatum*.

RUGEL, F.

- 188. *Lasiacis rugelii*.
- 189. *Oplismenus setarius*.
- 194. *Leptochloa filiformis*.
- 753. *Paspalum alterniflorum*.
- 870. *Uniola virgata*.
- 873. *Olyra latifolia*.
- 880. *Chaetochloa onurus*.
- 884. *Echinochloa colonum*.
- 886. *Leptochloa filiformis*.
- 887. *Eriochloa punctata*.
- 889. *Echinochloa sabulicola*.

892. *Syntherisma sanguinalis*.  
 896. *Leptochloa virgata*.

SAGRA, R. DE LA.

96. *Arthrostylidium capillifolium*.

SCHOTT, A.

103. *Andropogon glomeratus*.

SEIN, BROTHER.

317. *Holcus halepensis*.  
 318. *Sorghastrum parviflorum*.  
 321. *Paspalum secans*.  
 356. *Cymbopogon citratus*.

SERGIUS, BROTHER.

2411. *Paspalum unispicatum*.  
 2566. *Panicum exiguiflorum*.  
 2569. *Chloris sagraeana*.  
 2570. *Arundinella berteroniana*.  
 2682. *Paspalum unispicatum*.  
 2712. *Chaetochloa onurus*.  
 2776. *Panicum adpersum*.  
 2777. *Paspalum plicatulum*.  
 2780. *Panicum laxum*.  
 2781. *Panicum laxum*.  
 2789. *Panicum geminatum*.  
 2790. *Syntherisma leucomoma*.

SHAFFER, J. A.

13. *Olyra latifolia*.  
 18. *Aristida adscensionis*.  
 19. *Eragrostis ciliaris*.  
 28. *Valota insularis*.  
 38. *Paspalum conjugatum*.  
 41. *Dactyloctenium aegyptium*.  
 48. *Aristida adscensionis*.  
 53. *Lithachne pauciflora*.  
 54. *Pharus glaber*.  
 68. *Eragrostis cubensis*.  
 84. *Eragrostis amabilis*.  
 142. *Antheophora hermaphrodita*.  
 153. *Eragrostis tephrosanthos*.  
 174. *Panicum laxum*.  
 185. *Dactyloctenium aegyptium*.  
 196. *Andropogon bicornis*.  
 215. *Bouteloua americana*.  
 217. *Panicum laxum* (Cuba).

217. *Cenchrus echinatus* (Montserrat).

224. *Andropogon glomeratus*.  
 244. *Bouteloua americana*.  
 253. *Lasiacis sorgholdea*.  
 255. *Lasiacis sorghoidea*.  
 320. *Cenchrus echinatus*.  
 324. *Pharus glaber*.  
 337. *Panicum trichoides*.  
 385. *Panicum diffusum*.  
 415. *Coix lachryma-jobi*.  
 482. *Opizia stolonifera*.  
 483. *Chloris virgata*.  
 528. *Olyra latifolia*.  
 534. *Leptochloa filiformis*.  
 536. *Eriochloa punctata*.  
 560. *Arthrostylidium capillifolium*.  
 584. *Panicum fasciculatum*.  
 691. *Sporobolus domingensis*.  
 700. *Cenchrus carolinianus* (Cuba).  
 700. *Lasiacis divaricata* (Montserrat).  
 701. *Lasiacis sorghoidea* (Montserrat).  
 701. *Uniola paniculata* (Cuba).  
 702. *Sporobolus berterioanus*.  
 703. *Syntherisma sanguinalis*.  
 704. *Echinochloa colonum*.  
 705. *Eleusine indica*.  
 706. *Panicum trichoides*.  
 707. *Paspalum fimbriatum*.  
 710. *Ichnanthus pallens*.  
 716. *Chloris petraea*.  
 831. *Arthrostylidium capillifolium*.  
 961a. *Eragrostis hypnoides*.  
 972. *Sporobolus domingensis*.  
 993. *Leptochloa virgata*.  
 1022. *Cenchrus viridis*.  
 1073. *Lasiacis divaricata*.  
 1089. *Homalocenchrus monandrus*.  
 1091. *Leptochloa virgata*.  
 1142. *Lasiacis divaricata*.  
 1145. *Imperata brasiliensis*.  
 1147. *Lasiacis ligulata*.  
 1159. *Leptochloa filiformis*.  
 1183. *Aristida curtifolia*.  
 1195. *Sporobolus berterioanus*.  
 1244. *Arthrostylidium capillifolium*.  
 1270. *Chloris paraguayensis*.  
 1348. *Olyra latifolia*.  
 1368. *Valota insularis*.  
 1375. *Lasiacis divaricata*.  
 1398a. *Arthrostylidium capillifolium*.

1437. *Sporobolus berterianus* (Mont-  
serrat).  
 1437. *Panicum diffusum* (Cuba).  
 1438. *Panicum condensum*.  
 1446. *Ichnanthus pallens*.  
 1512. *Panicum diffusum*.  
 1535. *Leptochloa virgata*.  
 1537. *Valota insularis*.  
 1561. *Echinochloa colonum*.  
 1614. *Sporobolus indicus*.  
 1630. *Olyra latifolia*.  
 1639. *Andropogon leucostachyus*.  
 1657. *Sporobolus indicus*.  
 1666. *Eragrostis hypnoides*.  
 1668. *Capriola dactylon*.  
 1681. *Andropogon leucostachyus*.  
 1683. *Leptocoryphium lanatum*.  
 1980. *Hymenachne amplexicaulis*.  
 1981. *Leptochloa scabra*.  
 1992. *Uniola virgata*.  
 2404. *Eragrostis ciliaris*.  
 2423. *Eragrostis tephrosanthos*.  
 2435. *Valota insularis*.  
 2461. *Panicum reptans*.  
 2469. *Syntherisma digitata*.  
 2470. *Cenchrus echinatus*.  
 2472. *Chloris paraguayensis*.  
 2474. *Chloris radiata*.  
 2476. *Paspalum fimbriatum*.  
 2481. *Sporobolus indicus*.  
 2483. *Echinochloa colonum*.  
 2496. *Dactyloctenium aegyptium*.  
 2501. *Bouteloua americana*.  
 2512. *Panicum distantiflorum*.  
 2523. *Panicum laxum*.  
 2549. *Lasiacis sloanei*.  
 2559. *Pharus glaber*.  
 2565. *Chaetochloa setosa*.  
 2569. *Paspalum glabrum*.  
 2570. *Lasiacis sloanei*.  
 2571. *Lasiacis divaricata*.  
 2574. *Cymbopogon citratus*.  
 2575. *Eragrostis tephrosanthos*.  
 2578. *Paspalum caespitosum*.  
 2585. *Stenotaphrum secundatum*.  
 2625. *Arthrostylidium capillifolium*.  
 2626. *Sporobolus virginicus* (Cuba).  
 2626. *Oplismenus hirtellus* (Porto  
Rico).  
 2653. *Cenchrus viridis*.  
 2668. *Arundo donax*.  
 2686. *Eleusine indica*.  
 2720. *Lasiacis divaricata*.  
 2735. *Panicum amarulum*.  
 2737. *Cenchrus carolinianus*.  
 2738. *Sporobolus littoralis*.  
 2739. *Chloris petraea*.  
 2751. *Eragrostis ciliaris*.  
 2768. *Uniola virgata*.  
 2773. *Monanthochloë littoralis*.  
 2795. *Muhlenbergia capillaris*.  
 2830. *Panicum utowanaeum*.  
 2846. *Sporobolus littoralis*.  
 2858. *Panicum maximum*.  
 2874. *Paspalum distachyon*.  
 2881. *Panicum barbinode*.  
 2904. *Leptochloa nealleyi*.  
 2905. *Paspalum distachyon*.  
 2936. *Andropogon semiberbis*.  
 2938. *Uniola virgata*.  
 2952. *Eragrostis ciliaris*.  
 2966. *Ichnanthus mayarensis*.  
 2968. *Panicum aciculare*.  
 2988. *Andropogon gracilis*.  
 2990. *Aristida refracta*.  
 2997. *Panicum scoparium*.  
 2998. *Syntherisma sanguinalis*.  
 2999. *Panicum nitidum*.  
 3001. *Panicum nitidum*.  
 3007. *Andropogon glomeratus*.  
 3009. *Chaetochloa geniculata*.  
 3010. *Coix lachryma-jobi*.  
 3011. *Oplismenus hirtellus*.  
 3013. *Isachne leersioides*.  
 3017. *Lasiacis divaricata*.  
 3018. *Panicum scoparium*.  
 3020. *Chaetochloa onurus*.  
 3022. *Ichnanthus pallens*.  
 3058. *Ichnanthus mayarensis*.  
 3080. *Aristida refracta*.  
 3083. *Panicum polycaulon*.  
 3172. *Cenchrus viridis*.  
 3212. *Pharus glaber*.  
 3488. *Olyra latifolia*.  
 3668. *Triscenia ovina*.  
 3694. *Aristida curtifolia*.  
 3697. *Gynerium sagittatum*.  
 3771. *Arthrostylidium fimbriatum*.  
 3781. *Arundinella confinis*.  
 3855. *Andropogon gracilis*.  
 3856. *Imperata brasiliensis*.  
 3858. *Aristida refracta*.  
 3905. *Eragrostis amabilis*.  
 3951. *Paspalum poiretii*.  
 3955. *Panicum reptans*.  
 7729. *Paspalum rupestre*.



7732. *Paspalum filiforme*.  
 7761. *Axonopus compressus*.  
 7772. *Pharus glaber*.  
 7827. *Lasiacis divaricata*.  
 7840. *Olyra latifolia*.  
 8047. *Arthrostylidium sarmentosum*.  
 8104. *Ischaemum rugosum*.  
 8137. *Arthrostylidium fimbriatum*.  
 8397. *Andropogon gracilis*.  
 8537. *Olyra latifolia*.  
 8561. *Isachne leersioides*.  
 8751. *Lasiacis divaricata*.  
 9014. *Panicum glutinosum*.  
 9015. *Ichnanthus pallens*.  
 9025. *Paspalum conjugatum*.  
 10353. *Sorghastrum stipoides*.  
 10364. *Aristida curtifolia*.  
 10373. *Sporobolus indicus*.  
 10374. *Cenchrus echinatus*.  
 10384. *Andropogon fastigiatus*.  
 10385. *Andropogon glomeratus*.  
 10392. *Echinochloa colonum*.  
 10393. *Chloris ciliata*.  
 10397. *Panicum reptans*.  
 10413. *Andropogon fastigiatus*.  
 10414. *Aristida refracta*.  
 10444. *Oplismenus hirtellus*.  
 10445. *Cenchrus echinatus*.  
 10455. *Olyra latifolia*.  
 10456. *Eragrostis ciliaris laxa*.  
 10457. *Syntherisma digitata*.  
 10459. *Valota insularis*.  
 10475. *Eleusine indica*.  
 10481. *Andropogon brevifolius*.  
 10484. *Panicum fusiforme*.  
 10549. *Homalocenchrus monandrus*.  
 10553. *Lithachne pauciflora*.  
 10630. *Aristida curtifolia*.  
 10639. *Panicum chrysopsidifolium*.  
 10656. *Hymenachne amplexicaulis*.  
 10659. *Panicum parvifolium*.  
 10717. *Cenchrus distichophyllus*.  
 10718. *Aristida refracta*.  
 10730. *Chaetochloa geniculata*.  
 10731. *Eragrostis cubensis*.  
 10733. *Panicum aciculare*.  
 10750. *Panicum tenerum*.  
 10757. *Sporobolus purpurascens*.  
 10769. *Syntherisma serotina*.  
 10792. *Rytillix granularis*.  
 10803. *Panicum parvifolium*.  
 10807. *Panicum tenerum*.  
 10862. *Paspalum multicaule*.  
 10864. *Aristida refracta*.  
 10873. *Panicum aciculare*.  
 10910. *Panicum cayennense*.  
 10912. *Panicum aquaticum*.  
 10927. *Panicum virgatum cubense*.  
 10934. *Erianthus saccharoides*.  
 10975. *Andropogon bicornis*.  
 11021. *Panicum erectifolium*.  
 11043. *Muhlenbergia capillaris*.  
 11049. *Panicum fusiforme*.  
 11147. *Lasiacis sloanei*.  
 11149. *Lasiacis divaricata*.  
 11152. *Cenchrus viridis*.  
 11218. *Andropogon fastigiatus*.  
 11254. *Aristida refracta*.  
 11793. *Panicum laxum*.  
 11794. *Syntherisma sanguinalis*.  
 11795. *Chaetochloa geniculata*.  
 11796. *Eleusine indica*.  
 11804. *Paspalum conjugatum*.  
 11806. *Syntherisma sanguinalis*.  
 11853. *Valota insularis*.  
 12006. *Lasiacis grisebachii*.  
 12060. *Bouteloua heterostega*.  
 12073. *Andropogon saccharoides*.  
 12074. *Cenchrus echinatus*.  
 12099. *Chloris paraguayensis*.  
 12116. *Bambos vulgaris*.  
 12119. *Sporobolus indicus*.  
 12121. *Dactyloctenium aegyptium*.  
 12152. *Echinochloa colonum*.  
 12187. *Eragrostis ciliaris*.  
 12225. *Chloris sagraeana*.  
 12323. *Lasiacis sorghoidea*.  
 12344. *Sporobolus domingensis*.  
 12386. *Bouteloua heterostega*.  
 12392. *Syntherisma sanguinalis*.  
 12394. *Chloris virgata*.  
 13368. *Sporobolus indicus*.  
 13499. *Olyra latifolia*.  
 13504. *Pharus glaber*.  
 13505. *Panicum pilosum*.  
 13529. *Andropogon gracilis*.  
 13531. *Valota insularis*.  
 SHAFER, J. A., AND FITCH, W. R.  
 1467. *Arthrostylidium capillifolium*.  
 SHAFER, J. A., AND LEÓN, BROTHER.  
 13533. *Lithachne pauciflora*.  
 13535. *Panicum pilosum*.  
 13539. *Paspalum paniculatum*.

13544. *Pharus latifolius*.  
 13562. *Panicum millegrana*.  
 13564. *Lasiacis divaricata*.  
 13609. *Leptocoryphium lanatum*.  
 13613. *Andropogon leucostachyus*.  
 13615. *Panicum acuminatum*.  
 13635. *Panicum zizanioides*.  
 13637. *Brachiaria platyphylla*.  
 13670. *Homalocenchrus monandrus*.  
 13677. *Paspalum minus*.  
 13681. *Chaetochloa geniculata*.  
 13715. *Andropogon gracilis*.  
 13717. *Andropogon leucostachyus*.  
 13719. *Panicum cayennense*.  
 13720. *Andropogon gracilis*.  
 13722. *Sporobolus brasiliensis*.  
 13724. *Brachiaria platyphylla*.  
 13725. *Syntherisma digitata*.  
 13850. *Brachiaria platyphylla*.  
 13852. *Echinochloa colonum*.

SIEBER, F. W.

11. *Paspalum virgatum*.  
 31. *Phragmites phragmites*.  
 129. *Antheophora hermaphrodita*.  
 137. *Paspalum saccharoides*.  
 143. *Paspalum paniculatum*.  
 364. *Paspalum notatum*.  
 366. *Paspalum conjugatum*.

SINTENIS, P.

16. *Sporobolus indicus*.  
 26. *Valota insularis*.  
 28. *Chloris radiata*.  
 29b. *Cenchrus carolinianus*.  
 30. *Ryttilix granularis*.  
 51. *Panicum maximum*.  
 68. *Lasiacis divaricata*.  
 72. *Oplismenus hirtellus*.  
 72b. *Oplismenus setarius*.  
 77. *Aristida portoricensis*.  
 98. *Axonopus compressus*.  
 99. *Paspalum conjugatum*.  
 125. *Andropogon bicornis*.  
 138. *Olyra latifolia*.  
 160. *Panicum trichoides*.  
 168. *Sporobolus indicus*.  
 208. *Chaetochloa geniculata*.  
 209. *Arthrostylidium multispicatum*.  
 211. *Andropogon brevifolius*.  
 212. *Oryza sativa*.

213. *Valota insularis*.  
 214. *Ichnanthus pallens*.  
 215. *Lasiacis ligulata*.  
 222. *Cymbopogon citratus*.  
 352. *Eleusine indica*.  
 353. *Andropogon fastigiatus*.  
 354. *Arthrostylidium sarmentosum*.  
 355. *Panicum acuminatum*.  
 356. *Coix lachryma-jobi*.  
 357. *Panicum glutinosum*.  
 358. *Paspalum plicatulum*.  
 360. *Panicum laxum*.  
 361. *Arundinella confinis*.  
 549. *Sporobolus argutus*.  
 549b. *Sporobolus domingensis*.  
 553. *Aristida adscensionis*.  
 555. *Chloris petraea*.  
 674. *Eragrostis hypnoides*.  
 743. *Eragrostis tephrosanthos*.  
 834. *Eleusine indica*.  
 835. *Sporobolus virginicus*.  
 838. *Eragrostis ciliaris*.  
 839. *Uniola virgata*.  
 840. *Uniola virgata*.  
 843. *Dactyloctenium aegyptium*.  
 844. *Leptochloa scabra*.  
 845. *Echinochloa colonum*.  
 847. *Panicum reptans*.  
 848. *Sporobolus virginicus*.  
 853. *Chaetochloa setosa*.  
 938. *Panicum elephantipes*.  
 1031. *Chloris petraea*.  
 1195. *Sporobolus berterianus*.  
 1212. *Capriola dactylon*.  
 1216. *Panicum parvifolium*.  
 1223 (in part). *Paspalum millegrana*.  
 1223 (in part). *Paspalum virgatum*.  
 1224. *Panicum acuminatum*.  
 1225. *Eragrostis hypnoides*.  
 1227b. *Eriochloa punctata*.  
 1228. *Eriochloa subglabra*.  
 1229. *Paspalum orbiculatum*.  
 1233. *Eragrostis elliottii*.  
 1254. *Panicum laxum*.  
 1255. *Syntherisma digitata*.  
 1292. *Eleusine indica*.  
 1355. *Isachne angustifolia*.  
 1571. *Gynerium sagittatum*.  
 1720. *Paspalum distichum*.  
 1889. *Echinochloa sabulicola*.  
 1901. *Panicum fasciculatum*.  
 1902. *Ryttilix granularis*.  
 1905. *Pharus glaber*.

1957. *Panicum adspersum*.  
 1959. *Bouteloua heterostega*.  
 2144. *Gynerium sagittatum*.  
 2190. *Hymenachne amplexicaulis*.  
 2203. *Bouteloua heterostega*.  
 2225. *Oplismenus setarius*.  
 2245. *Pharus glaber*.  
 2267. *Bouteloua heterostega*.  
 2272. *Sporobolus indicus*.  
 2286. *Oplismenus setarius*.  
 2318. *Lasiacis divaricata*.  
 2320. *Eragrostis tephrosanthos*.  
 2386. *Eriochloa punctata*.  
 2396. *Lithachne pauciflora*.  
 2406. *Ichnanthus nemorosus*.  
 2451. *Paspalum portoricense*.  
 2467. *Stenotaphrum secundatum*.  
 2468. *Panicum maximum*.  
 2470. *Lasiacis divaricata*.  
 2471. *Panicum trichanthum*.  
 2473. *Syntherisma digitata*.  
 2507. *Pharus glaber*.  
 2509. *Paspalum paniculatum*.  
 2527. *Anatherum zizanioides*.  
 2539. *Paspalum secans*.  
 2543. *Echinochloa sabulicola*.  
 2609. *Panicum glutinosum*.  
 2612. *Paspalum plicatum*.  
 2715. *Paspalum distichum*.  
 2720. *Imperata contracta*.  
 2861. *Lasiacis sorghoidea*.  
 2869. *Ichnanthus axillaris*.  
 2870. *Oplismenus hirtellus*.  
 2904. *Cenchrus viridis*.  
 2987. *Chaetochloa setosa*.  
 3042. *Pharus glaber*.  
 3062. *Lasiacis sorghoidea*.  
 3111. *Syntherisma sanguinalis*.  
 3197. *Chaetochloa setosa*.  
 3228. *Homalocenchrus monandrus*.  
 3247. *Andropogon fastigiatus*.  
 3282. *Leptochloa scabra*.  
 3307. *Sporobolus argutus*.  
 3348. *Holcus sorghum*.  
 3365. *Panicum utowanaeum*.  
 3366. *Panicum maximum*.  
 3367. *Panicum geminatum*.  
 3368. *Panicum reptans*.  
 3416. *Panicum utowanaeum*.  
 3416b. *Sporobolus argutus*.  
 3438. *Aristida adscensionis*.  
 3463. *Panicum utowanaeum*.  
 3550. *Leptochloa filiformis*.

3647. *Panicum fasciculatum*.  
 3649. *Eragrostis ciliaris*.  
 3766. *Aristida adscensionis*.  
 3891. *Arthrostylidium capillifolium*.  
 4045. *Isachne angustifolia*.  
 4046. *Arthrostylidium sarmentosum*.  
 4106. *Arthrostylidium multispicatum*.  
 4253. *Eriochloa punctata*.  
 4457. *Chaetochloa geniculata*.  
 4481. *Andropogon leucostachyus*.  
 4610. *Ichnanthus axillaris*.  
 4764. *Olyra latifolia*.  
 4766. *Paspalum fimbriatum*.  
 4891. *Arundo donax*.  
 4949. *Sporobolus indicus*.  
 4983. *Panicum ghiesbreghtii*.  
 5084. *Sporobolus littoralis*.  
 5103. *Leptochloa scabra*.  
 5245. *Anatherum zizanioides*.  
 5294. *Cymbopogon citratus*.  
 5295. *Cymbopogon citratus*.  
 5516. *Andropogon fastigiatus*.  
 5695. *Eragrostis tephrosanthos*.  
 5719. *Panicum parvifolium*.  
 5724. *Panicum polycaulon*.  
 5797. *Arundinella confinis*.  
 5902. *Andropogon virgatus*.  
 5908. *Panicum acuminatum*.  
 5918. *Lasiacis divaricata*.  
 5985. *Panicum chrysopsidifolium*.  
 5988. *Andropogon semiberbis*.  
 6232. *Pharus glaber*.  
 6335. *Chaetochloa magna*.  
 6421. *Isachne angustifolia*.  
 6498. *Chaetochloa tenacissima*.  
 6617. *Andropogon bicornis*.  
 6735. *Antheophora hermaphrodita*.  
 6857. *Paspalum vaginatum*.  
 6861. *Chaetochloa geniculata*.

## SMALL, J. K., AND CARTER, J. J.

8586. *Lasiacis divaricata*.  
 8658. *Paspalum caespitosum*.  
 8711. *Cenchrus viridis*.  
 8788. *Sporobolus virginicus*.  
 8794. *Muhlenbergia capillaris*.  
 8823. *Paspalum caespitosum*.  
 8910. *Imperata brasiliensis*.  
 8917. *Arthrostylidium capillifolium*.  
 8918. *Chloris petraea*.  
 8926. *Paspalum fimbriatum*.  
 8947. *Stenotaphrum secundatum*.  
 8972. *Cenchrus carolinianus*.

## SMITH, G. W.

192. *Paspalum saccharoides*.  
 840. *Sporobolus indicus*.  
 843. *Paspalum saccharoides*.

## STAHL, A.

2. *Bouteloua heterostega*.  
 8. *Imperata contracta*.  
 13. *Andropogon bicornis*.  
 26. *Andropogon brevifolius*.  
 28. *Anatherum zizanioides*.  
 29. *Anatherum zizanioides*.  
 42. *Paspalum densum*.

## STEVENS, F. L.

4755. *Chusquea abietifolia*.

## STEVENS, F. L., AND HESS, W. E.

4882. *Lasiacis harrisii*.

## STEVENSON, J. A.

2217. *Syntherisma sanguinalis*.  
 2218. *Syntherisma digitata*.  
 2273. *Cymbopogon citratus*.  
 2292. *Paspalum glabrum*.  
 2304. *Eriochloa subglabra*.  
 2416. *Cenchrus myosuroides*.  
 2454. *Paspalum clavuliferum*.  
 2518. *Arundinella confinis*.  
 2580. *Uniola virgata*.  
 2783. *Panicum portoricense*.  
 2941. *Anatherum zizanioides*.  
 2942. *Sporobolus virginicus*.  
 2987. *Leptochloa scabra*.  
 3024. *Chaetochloa vulpiseta*.  
 3052. *Panicum milliaceum*.  
 3219. *Paspalum conjugatum*.  
 3220. *Panicum barbinode*.  
 3282. *Axonopus aureus*.  
 3327. *Ichnanthus pallens*.  
 3339. *Andropogon brevifolius*.  
 3341. *Panicum trichoides*.  
 3498. *Cenchrus echinatus*.  
 3566. *Panicum aquaticum*.  
 3579. *Eragrostis ciliaris*.  
 3758. *Panicum reptans*.  
 3921. *Leptochloa filiformis*.

3987. *Eragrostis hypnoides*.  
 3991. *Cenchrus echinatus*.  
 3994. *Paspalum secans*.  
 5190. *Paspalum secans*.  
 5198. *Cenchrus echinatus*.  
 5388. *Echinochloa sabulicola*.  
 5389. *Paspalum distichum*.

## TAYLOR, A. A.

16. *Andropogon selloanus*.  
 17. *Andropogon nashianus*.  
 20. *Aristida gyrans*.  
 23. *Andropogon virgatus*.  
 24. *Cenchrus echinatus*.  
 25. *Eragrostis elliptica*.  
 26. *Olyra latifolia*.  
 31. *Mesosetum loliforme*.  
 32. *Panicum albomarginatum*.  
 34. *Panicum cayennense*.  
 35. *Panicum exiguum*.  
 36. *Panicum pilosum*.  
 37. *Panicum laxum*.  
 38. *Paspalum plicatulum*.  
 40. *Paspalum nanum*.  
 41. *Paspalum rottboelliioides*.  
 42. *Paspalum virgatum*.  
 44. *Reynaudia filiformis*.  
 45. *Chaetochloa geniculata*.  
 46. *Rhaphis pauciflora*.  
 48. *Sporobolus indicus*.

## TRACY, S. M.

9046. *Andropogon leucostachyus*.  
 9047. *Lasiacis divaricata*.  
 9048. *Leptocoryphium lanatum*.  
 9049. *Syntherisma digitata*.  
 9050. *Valota insularis*.  
 9051. *Paspalum plicatulum*.  
 9052. *Paspalum plicatulum*.  
 9054. *Panicum laxum*.  
 9055. *Panicum dichotomiflorum*.  
 9056. *Paspalum distichum*.  
 9057. *Eragrostis tephrosanthos*.  
 9058. *Mesosetum loliforme*.  
 9059. *Manisuris loricata*.  
 9060. *Panicum parvifolium*.  
 9061. *Leptochloa virgata*.  
 9062. *Panicum laxum*.  
 9063. *Panicum pilosum*.  
 9064. *Sporobolus indicus*.  
 9066. *Sporobolus indicus*.  
 9067. *Andropogon gracilis*.

9068 (in part). *Panicum ghiesbreghtii*.  
 9068 (in part). *Andropogon tener*.  
 9069. *Andropogon nashianus*.  
 9070. *Reynaudia filiformis*.  
 9071. *Leptocoryphium lanatum*.  
 9072. *Panicum laxum*.  
 9073. *Panicum cayennense*.  
 9074. *Panicum fusiforme*.  
 9075. *Panicum exiguilorum*.  
 9076. *Aristida erecta*.  
 9077. *Syntherisma leucocoma*.  
 9078. *Panicum acuminatum*.  
 9079. *Panicum parvifolium*.  
 9080. *Panicum tenerum*.  
 9081. *Sporobolus indicus*.  
 9082. *Panicum diffusum*.  
 9083. *Valota insularis*.  
 9084. *Chloris paraguayensis*.  
 9085. *Chloris ciliata*.  
 9086. *Trachypogon gouini*.  
 9087. *Paspalum caespitosum*.  
 9088. *Bouteloua heterostega*.  
 9089. *Panicum utowanaeum*.  
 9090. *Chaetochloa onurus*.  
 9091. *Panicum fasciculatum*.  
 9092. *Axonopus compressus*.  
 9093. *Paspalum minus*.  
 9094. *Lasiacis divaricata*.  
 9095. *Aristida gyrans*.  
 9096. *Eragrostis elliottii*.  
 9097. *Eragrostis cubensis*.  
 9098. *Panicum millegrana*.  
 9099. *Panicum laxum*.  
 9100. *Rytillix granularis*.  
 9101. *Rytillix granularis*.  
 9102. *Panicum adpersum*.  
 9103. *Panicum reptans*.  
 9104. *Syntherisma argillacea*.  
 9105. *Paspalum alterniflorum*.  
 9106. *Chloris ciliata*.  
 9108. *Leptochloa virgata*.  
 9109. *Panicum adpersum*.  
 9110. *Chloris radiata*.  
 9111. *Panicum diffusum*.  
 9112. *Chaetochloa geniculata*.  
 9113. *Chloris paraguayensis*.  
 9114. *Panicum laxum*.  
 9115. *Chloris ciliata*.  
 9116. *Panicum ghiesbreghtii*.  
 9117. *Paspalum plicatulum*.  
 9118. *Paspalum notatum*.  
 9119. *Paspalum denticulatum*.  
 9120. *Paspalum virgatum*.

9121. *Paspalum millegrana*.  
 9122. *Paspalum virgatum*.  
 9123. *Paspalum virgatum*.  
 9124. *Paspalum virgatum*.  
 9125. *Paspalum secans*.  
 9126. *Paspalum secans*.  
 9127. *Paspalum virgatum*.  
 9132. *Leptocoryphium lanatum*.  
 9342. *Panicum dichotomiflorum*.

TRINIDAD BOTANICAL GARDEN HERBARIUM.

1328. *Oplismenus hirtellus*.  
 1380. *Chaetochloa geniculata*.  
 1674. *Oryza latifolia*.  
 1675. *Arthrostyidium prestoei*.  
 1678. *Echinochloa sabulicola*.  
 1679. *Chaetochloa geniculata*.  
 2155. *Paspalum densum*.  
 2161. *Eragrostis ciliaris*.  
 2164. *Axonopus compressus*.  
 2175. *Paspalum coryphaeum*.  
 2176. *Eleusine indica*.  
 2177. *Panicum laxum*.  
 2180. *Axonopus compressus*.  
 2254. *Stenotaphrum secundatum*.  
 2258. *Oplismenus hirtellus*.  
 2259. *Oplismenus hirtellus*.  
 2271. *Paspalum decumbens*.  
 2275. *Paspalum orbiculatum*.  
 2278. *Ichnanthus nemoralis*.  
 2281. *Ichnanthus pallens*.  
 2283. *Panicum fasciculatum*.  
 2285. *Echinochloa colonum*.  
 2286. *Panicum zizanioides*.  
 2293. *Panicum stoloniferum*.  
 2295. *Panicum hirsutum*.  
 2298. *Lasiacis sorghoidea*.  
 2299. *Ichnanthus ichnodes*.  
 2303. *Lasiacis ruscifolia*.  
 2304. *Mantisuris aurlta*.  
 3035. *Eragrostis hypnoides*.  
 3182. *Ichnanthus ichnodes*.  
 3187. *Panicum stoloniferum*.  
 3188. *Panicum zizanioides*.  
 3189. *Ichnanthus pallens*.  
 3190. *Lasiacis sorghoidea*.  
 3191. *Ichnanthus pallens*.  
 3192. *Panicum fasciculatum*.  
 3194. *Panicum hirtum*.  
 9195. *Panicum milleflorum*.  
 3206. *Anatherum zizanioides*.

3208. *Chaetochloa geniculata*.  
 3221. *Manisuris exaltata*.  
 3224. *Oplismenus hirtellus*.  
 3227. *Arundinella confinis*.  
 3249. *Sporobolus virginicus*.  
 3259. *Eragrostis glomerata*.  
 3293. *Panicum pilosum*.  
 3302. *Anatherum zizanioides*.  
 3303. *Tripsacum dactyloides*.  
 3304. *Chaetochloa vulpiseta*.  
 3310. *Pappophorum alopecuroides*.  
 3318. *Ichnanthus leiocarpus*.  
 3354. *Sacciolepis myuros*.  
 3355. *Hymenachne auriculata*.  
 3359. *Leptochloa longa*.  
 3361. *Gymnopogon spicatus*.  
 3364. *Pharus parvifolius*.  
 3366. *Eragrostis glomerata*.  
 3367. *Streptogyne crinita*.  
 3368. *Leptocoryphium lanatum*.  
 3371. *Planotia virgata*.  
 3373. *Thrasya paspaloides*.  
 3374. *Valota laxa*.  
 3375. *Arundinella confinis*.  
 3376. *Bambos vulgaris*.  
 3377. *Chloris petraea*.  
 3379. *Imperata contracta*.  
 3380. *Ischaemum latifolium*.  
 3382. *Andropogon leucostachyus*.  
 3383. *Andropogon condensatus*.  
 3433. *Syntherisma longiflora*.  
 3704. *Sporobolus indicus*.  
 4194. *Paspalum repens*.  
 4197. *Panicum megiston*.  
 5064. *Andropogon pertusus panormitanus*.  
 5425. *Ichnanthus axillaris*.  
 6671. *Raddia nana*.

TÜRCKHEIM, H. VON.

2883. *Oplismenus burmanni*.  
 3059. *Panicum xalapense*.  
 3227. *Agrostis perennans*.  
 3228. *Cenchrus echinatus*.  
 3275. *Bouteloua heterostega*.  
 3319. *Sphenopholis obtusata*.  
 3321. *Panicum lancearium*.  
 3413. *Agrostis perennans*.  
 3414. *Danthonia domingensis*.  
 3459. *Syntherisma panicea*.  
 3557. *Agrostis perennans*.  
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3600. *Bouteloua heterostega*.  
 3610. *Oplismenus burmanni*.  
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 3669. *Pennisetum domingense*.

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 406. *Cenchrus echinatus*.  
 462. *Panicum fasciculatum*.  
 505. *Pharus glaber*.  
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 718. *Gynerium sagittatum*.  
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 959. *Stenotaphrum secundatum*.  
 996. *Sporobolus virginicus*.

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318. *Ichnanthus pallens*.  
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 325. *Oplismenus hirtellus*.  
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 1139. *Eleusine indica*.  
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 1277. *Paspalum conjugatum*.  
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 1405. *Panicum diffusum*.  
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 7628. *Eragrostis ciliaris*.  
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